IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.,	)	
Plaintiffs,	)	Civil Action No. 07-409-SLR
v.	)	**JURY TRIAL DEMANDED**
JOHNSON & JOHNSON, INC. and CORDIS CORPORATION,	)	
Defendants.	)	

AMENDED COMPLAINT FOR DECLARATORY JUDGMENT OF PATENT INVALIDITY, UNENFORCEABILITY AND NONINFRINGEMENT

Plaintiffs Boston Scientific Corporation and Boston Scientific Scimed, Inc. (collectively "BSC"), through their attorneys, bring this amended complaint against Defendants Johnson & Johnson, Inc. and Cordis Corporation (collectively "J&J") and requests a jury trial on all issues so triable. BSC alleges as follows, upon knowledge with respect to itself and its own acts, and upon information and belief as to the circumstances and facts of others:

NATURE OF THE ACTION

1. This is an action for a declaratory judgment that United States Patent No. 7,229,473 entitled "Local Delivery of Rapamycin for Treatment of Proliferative Sequelae Associated With PTCA Procedures, Including Delivery Using a Modified Stent" ("the Falotico '473 patent") is invalid, unenforceable and not infringed by BSC. The Falotico '473 patent is attached as Exhibit A.

THE PARTIES

2. Plaintiff Boston Scientific Corporation is a corporation organized under the laws of the State of Delaware, having its principal place of business at One Boston Scientific Plaza, Natick, Massachusetts 01760.

3. Plaintiff Boston Scientific Scimed, Inc. is a corporation organized under the laws of the State of Minnesota, having its principle place of business at One Scimed Place, Maple Grove, MN 55311-1566.

4. Upon information and belief, Defendant Johnson & Johnson, Inc. is a corporation organized under the laws of the State of New Jersey and has a principal place of business at 1 Johnson and Johnson Plaza, New Brunswick, New Jersey.

5. Upon information and belief, Defendant Cordis Corporation ("Cordis") is a corporation organized under the laws of the State of Florida and has a principal place of business in Miami Lakes, Florida. Cordis is a subsidiary of Johnson & Johnson, Inc.

JURISDICTION AND VENUE

6. This action arises under the Patent Laws of the United States (35 U.S.C. § 1, *et seq.*).

7. This Court has jurisdiction over the subject matter of all causes of action herein pursuant to 28 U.S.C. §§ 1331, 1338(a), 2201 and 2202.

8. On information and belief, J&J has systematic and continuous contacts in this judicial district.

9. On information and belief, J&J regularly avails itself of the benefits of this judicial district, including the jurisdiction of the courts.

10. On information and belief, J&J regularly transacts business within this judicial district.

11. On information and belief, J&J regularly sells products in this judicial district. J&J derives substantial revenues from sales in this district.

12. This Court has personal jurisdiction, general and specific, over J&J.

13. Venue in this judicial district is proper pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

BACKGROUND

14. BSC is a world renowned leader in the development of intravascular stents used to treat coronary artery disease.

15. J&J and, in particular, Cordis, directly compete with BSC in the field of intravascular stents used to treat coronary artery disease.

16. J&J has a well-known history of suing competitors, including BSC, in the field of intravascular stents for patent infringement. Within the past several years, J&J and/or Cordis have sued BSC in this Court, alleging patent infringement in cases involving intravascular stents used to treat coronary artery disease. BSC has also brought suits for patent infringement against J&J within this judicial district.

17. Pursuant to an agreement between BSC and Abbott Laboratories ("Abbott"), BSC is presently selling the PROMUS Stent System ("PROMUS") in both the United States and Europe. The PROMUS stent is a private-labeled Xience™ V Everolimus-Eluting Coronary Stent System ("XIENCE V") which is manufactured for BSC by Abbott. The PROMUS stent is an intravascular stent used to treat coronary artery disease. It advantageously releases a drug

designed to diminish reblocking (restenosis) of the patient's blood vessel into which the stent has been inserted.

18. The PROMUS stent received CE Mark approval in October 2006, which allows BSC to distribute PROMUS in 27 countries of the European Economic Area. Since that time, BSC has been taking title to the PROMUS stent from Abbott in the United States and then exporting those stents to the European market. BSC received approval for its PROMUS stent in the United States on July 2, 2008 and began selling it in the United States shortly thereafter.

19. In 2006, BSC purchased Guidant Corporation ("Guidant"). As part of the agreement governing the Guidant acquisition, Guidant separately sold the rights to its everolimus-eluting stent product to Abbott. BSC separately entered into an agreement with Abbott that permits BSC to sell (under the designation "PROMUS") the everolimus-eluting stents manufactured by Abbott (which Abbott sells on its own as its "XIENCE V" stent).

20. Abbott currently manufactures and sells its own everolimus-eluting stent, the XIENCE V stent, which is the same product as BSC's PROMUS stent.

21. On June 12, 2007, Cordis Corporation filed a patent infringement suit against Abbott in the United States District Court for the District of New Jersey. *See* Ex. B. the complaint in Civil Action No. 07-2728-JAP-TJB. Cordis alleges in its June 12 complaint that Abbott's manufacture and/or use of the XIENCE V stent in the United States infringes the Falotico '473 patent. (*Id.* at p. 4.) Among other remedies, Cordis seeks a preliminary and permanent injunction prohibiting Abbott from making, using, selling, or offering for sale the XIENCE V stent in the United States. (*Id.*)

22. Cordis' patent infringement suit, as referenced in paragraph 21, has created a present substantial controversy between J&J and BSC concerning the PROMUS stent. J&J,

through Cordis, has asserted rights under the Falotico '473 patent against the same product as the PROMUS stent, and the alleged infringement of that patent has created an apprehension that, if Cordis is successful in its suit, BSC's investment in the PROMUS stent will be harmed.

RELATED CASES PENDING IN THE DISTRICT OF DELAWARE

23. There are currently three, additional declaratory judgment actions on related patents and the Promus stent pending in the District of Delaware; namely Civil Action No. 07-333-SLR, Civil Action No. 07-409-SLR, and Civil Action No. 07-765-SLR.

COUNT I

INVALIDITY AND NONINFRINGEMENT OF U.S. PATENT NO. 7,229,473

24. BSC repeats and realleges each and every allegation contained in paragraphs 1-23 of this Amended Complaint as though fully set forth herein.

25. Each of the claims in the Falotico '473 patent is invalid for failure to comply with one or more of the requirements of Title 35, United States Code, including, but not limited to, 35 U.S.C. §§ 102, 103 and 112.

26. The PROMUS stent does not infringe any valid claim of the Falotico '473 patent.

COUNT II

UNENFORCEABILITY OF U.S. PATENT NO. 7,229,473

27. BSC repeats and realleges each and every allegation contained in paragraphs 1-26 of this Amended Complaint as though fully set forth herein.

28. Each of the claims in the Falotico '473 patent is unenforceable due to inequitable conduct before the United States Patent and Trademark Office ("PTO"). Multiple examples of this inequitable conduct are discussed below and BSC believes that additional examples are

likely to have evidentiary support after reasonable opportunity for further investigation and discovery.

29. The Falotico '473 patent issued from U.S. Patent Application Serial No. 11/466,983 ("the '983 Application"), which is a continuation of 10/951,385 ("the '385 Application"), which is a continuation of U.S. Patent Application Serial No. 10/408,328 ("the '328 Application"), which is a continuation of U.S. Patent Application Serial No. 09/874,117 ("the '117 Application"), which is a continuation of U.S. Patent Application Serial No. 09/061,568 ("the '568 Application"), and additionally claims priority to Provisional Application No. 60/044,692 (the '692 application") filed on April 18, 1997.

30. In prosecuting the application leading to the Falotico '473 patent, the past and present named inventors, their prosecuting attorneys and agents, their assignees and/or others associated with the prosecution of the applications leading to the Falotico '473 patent (collectively, "the Applicants"), were under a duty of candor and good faith to the PTO pursuant to the regulations of the PTO and the law, which included a duty to disclosure material information to the PTO

31. The Falotico '473 patent is unenforceable due to inequitable conduct because, among other reasons, the Applicants failed to comply with their duty of candor and good faith to the PTO, including their duty to disclose material information to the PTO.

32. For instance, upon information and belief, with intent to deceive the PTO, the Applicants intentionally and knowingly withheld the following information from the PTO during the pendency of the applications which led to the Falotico '473 patent, which information a reasonable Patent Examiner would have considered relevant, important and/or material to the patentability of the claims then-pending in the applications that led to the Falotico '473 patent as

well as the claims that ultimately issued in that patent: (a) despite prosecuting, pursuing and obtaining claims embracing stents having a bioaborbable polymer coating, the Applicants knew during the prosecution that such bioabsorbable polymers prevented the claimed stents from inhibiting restenosis and/or neointimal proliferation, presented fatal drug loading issues. caused inflammation, and generally did not work in the claimed subject matter and, as such, the Applicants knew that they were not in possession of the claimed subject matter at the time of the alleged invention; (b) the Applicants were aware of the existence of prototype stents in the prior art to the claimed subject matter, including paclitaxel-eluting stents using an EVA polymer coating which Applicants themselves had prepared and tested in animals in connection with Angiotech; (c).prior to filing the first application that led to the Falotico '473 patent, the Applicants conducted no experiments with the polymers listed in the application and recited in the claims as suitable coatings for the claimed stents, but learned during prosecution of the applications leading to that patent that certain preferred embodiments (e.g., either EVA or PBMA, alone, as the polymer coating) did not work as such a coating, and did not disclose any of that information to the PTO or the fact that a collaborator company developing such stent coatings obtained a patent of its own on polymer coatings that actually did work on the claimed stents; (d) the Applicants were aware of a dispute over the correct inventorship on the applications that led to the Falotico '473 patent during their prosecution, including, hut not limited to, assertions by Wyeth that one or more of its employees should have been named as inventors of the claimed subject matter; (e) the Applicants did not themselves research, develop, create or invent any of the component parts or the whole of the claimed subject matter, including, but not limited to, the drug, polymer coating and/or stent recited in the claims; (f) the language (including "analogs") used to define and claim the subject matter of the alleged invention of the

'7286 patent was created by individuals, including attorneys, not named as inventors on the applications that led to the Falotico '473 patent, and was intended to improperly broaden the scope of the pending and issued claims beyond the scope of the subject matter actually in possession of the individuals named as inventors on those applications; and (g) following the filing of the provisional application that led to the Falotico '473 patent and prior to the filing of the first application that led to that patent, the best mode for practicing the alleged invention of the Falotico '473 patent was developed by others not named as inventors on the Falotico '473 patent, was conveyed to those named inventors, and those facts and the best mode itself were then intentionally withheld and concealed from the PTO

33. Additionally, as illustrated by the examples below, the Applicants failed to disclose many highly material patents assigned to Cordis' licensor, Wyeth.

34. As an example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,252,579 ("the '579 patent") to the PTO. Upon information and belief, one or more of the Applicants failed to disclose the '579 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

35. Upon information and belief, a reasonable Patent Examiner would have considered the '579 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

36. Upon information and belief, one or more of the Applicants knew of the '579 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the

'579 patent via the on-going licensing relationship between Cordis and the assignee of the '579 patent.

37. Despite having knowledge that the '579 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants nevertheless failed to disclose the '579 patent to the PTO during prosecution of that application. This failure to disclose the highly material '579 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

38. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,256,790 ("the '790 patent") to the PTO. Upon information and belief, one or more of the Applicants failed to disclose the '790 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

39. Upon information and belief, a reasonable Patent Examiner would have considered the '790 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

40. Upon information and belief, one or more of the Applicants knew of the '790 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the '790 patent via the on-going licensing relationship between Cordis and the assignee of the '790 patent.

41. Despite having knowledge that the '790 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants

nevertheless failed to disclose the '790 patent to the PTO during prosecution of that application. This failure to disclose the highly material '790 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

42. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,362,718 ("the '718 patent") to the PTO. Upon information and belief, one or more of the Applicants failed to disclose the '718 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

43. Upon information and belief, a reasonable Patent Examiner would have considered the '718 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

44. Upon information and belief, one or more of the Applicants knew of the '718 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the '718 patent via the on-going licensing relationship between Cordis and the assignee of the '718 patent.

45. Despite having knowledge that the '718 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants nevertheless failed to disclose the '718 patent to the PTO during prosecution of that application. This failure to disclose the highly material '718 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

46. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,391,730 ("the '1730 patent") to the PTO. Upon information and belief, one or more of the Applicants failed to disclose the '1730 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

47. Upon information and belief, a reasonable Patent Examiner would have considered the '1730 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

48. Upon information and belief, one or more of the Applicants knew of the '1730 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the '1730 patent via the on-going licensing relationship between Cordis and the assignee of the '1730 patent.

49. Despite having knowledge that the '1730 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants nevertheless failed to disclose the '1730 patent to the PTO during prosecution of that application. This failure to disclose the highly material '1730 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

50. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,441,977 ("the '977 patent") to the PTO. Upon information and

belief, one or more of the Applicants failed to disclose the '977 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

51. Upon information and belief, a reasonable Patent Examiner would have considered the '977 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

52. Upon information and belief, one or more of the Applicants knew of the '977 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the '977 patent via the on-going licensing relationship between Cordis and the assignee of the '977 patent.

53. Despite having knowledge that the '977 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants nevertheless failed to disclose the '977 patent to the PTO during prosecution of that application. This failure to disclose the highly material '977 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

54. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose the material reference U.S. Patent No. 5,563,145 ("the '145 patent") to the PTO. Upon information and belief, one or more of the Applicants failed to disclose the '145 patent with the intent to deceive the PTO into granting the Falotico '473 patent.

55. Upon information and belief, a reasonable Patent Examiner would have considered the '145 patent important to the patentability of the claims in the application leading to the Falotico '473 patent.

56. Upon information and belief, one or more of the Applicants knew of the '145 patent and its materiality during prosecution of the application leading to the Falotico '473 patent. For example, upon information and belief, one or more of the Applicants knew of the '145 patent via the on-going licensing relationship between Cordis and the assignee of the '145 patent.

57. Despite having knowledge that the '145 patent was relevant and material to the prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants nevertheless failed to disclose the '145 patent to the PTO during prosecution of that application. This failure to disclose the highly material '145 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

58. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the applications leading to the Falotico '473 patent, one or more of the Applicants failed to disclose that (a) none of the named inventors first discovered the use of the claimed "rapamycin, or a macrocyclic lactone analog hereof" to inhibit neointimal proliferation and/or restenosis (including delivery via a stent), but instead learned this information from another source(s) and (b) none of the originally-named inventors were the first to conceive and/or reduce to practice the claims pursued in the applications leading to the Falotico '473 patent. For example, according to Cordis' supplemental interrogatory responses dated July 24, 2008, Dr. Robert Falotico (not an originally-named inventor) learned of rapamycin, and its ability to inhibit restenosis, before any

of the other named inventors and he learned that information from an unidentified third-party source. Upon information and belief, one or more of the Applicants failed to disclose this information with the intent to deceive the PTO into granting the Falotico '473 patent.

59. Upon information and belief, a reasonable Patent Examiner would have considered the information described in the preceding paragraph important to the patentability of the claims in the applications leading to the Falotico '473 patent.

60. Upon information and belief, one or more of the Applicants knew of this information and its materiality during prosecution of the applications leading to the Falotico '473 patent and nevertheless failed to cite it to the PTO. For example, despite knowing this information, none of the Applicants disclosed this information to the PTO, or informed the PTO of known inventorship errors, despite repeated opportunities to do so over many years. Moreover, when inventorship changes were made in 2007, the aforementioned material information still was not disclosed to the PTO. This failure to disclose highly material information was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

61. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the applications leading to the Falotico '473 patent, one or more of the Applicants intentionally obscured, hid, or concealed material prior art patents, publications, and/or papers from other proceedings that refuted, or were inconsistent with, the patentability of the claims pursued in the applications leading to the Falotico '473 patent. Such material documents were obscured, hidden, or concealed by either improperly burying them in a massive list of mostly irrelevant or marginally relevant references or not disclosing them at all.

62. For instance, U.S. Patent No. 5,516,781 ("the '781 patent") was a prior art reference material to the patentability of the claims pursued in the applications leading to the Falotico '473 patent. Like the claims being pursued, the '781 patent discloses, *inter alia*, the delivery of rapamycin via a stent to inhibit neointimal proliferation and/or restenosis.

63. Upon information and belief, one or more of the Applicants knew of the '781 patent and its materiality during prosecution of the applications leading to the Falotico '473 patent. Indeed, upon information and belief, one or more of the Applicants were intimately familiar with the '781 patent and its material disclosure given that Cordis had a license under the '781 patent during the prosecution period.

64. The first application in the chain leading to the Falotico '473 patent is the '568 Application. Despite having detailed knowledge that the '781 patent was relevant and material to the prosecution of the '568 Application, one or more of the Applicants nevertheless failed to disclose the '781 patent to the PTO during prosecution of that application. This failure to disclose the highly material '781 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting a patent based on '568 Application.

65. The second application in the chain leading to the Falotico '473 patent is the '117 Application. During prosecution of the '117 Application, one or more of the Applicants submitted an Information Disclosure Statement ("IDS") on or about June 4, 2001. The June 2001 IDS listed more than 80 U.S. and foreign patent references. Upon information and belief, one or more of the Applicants knew that many of the listed references were of minimal or no relevance. Notwithstanding the large size of the IDS disclosure, none of the Applicants identified the references of most significance or the pertinent portions of the listed references.

66. Additionally, the '117 Application IDS listed nearly all of the cited references in increasing numerical order. However, at the very end of the lengthy list, one or more of the Applicants buried a few U.S. patents out of order. These "out-of-order" patents included the '781 patent as well as certain other material prior art references. On information and belief, one or more of the Applicants knowingly and intentionally buried the '781 patent, and certain other material references, at the end of the list to obscure those references from the Patent Examiner. Upon information and belief, the out-of-order listing of the '781 patent was not accidental given that (among other things) one or more of the Applicants were intimately aware of the '781 patent, and its materiality, long before preparing the IDS (e.g., given Cordis' long-standing license under the '781 patent as of the June 2001 IDS date).

67. The aforementioned conduct in connection with '117 Application was motivated by, and accomplished with, the intent to deceive the PTO into granting a patent based on the '117 Application. Ultimately, the Patent Examiner allowed claims substantially similar to, if not broader than, the claims of the Falotico '473 patent without raising any rejections based on the '781 patent.

68. The third application in the chain leading to the Falotico '473 patent is the '328 Application. During prosecution of the '328 Application, one or more of the Applicants submitted an Information Disclosure Statement ("IDS") on or about April 7, 2003. The April 2003 IDS listed more than 90 U.S. and foreign patent references and nearly 30 publications. Upon information and belief, one or more of the Applicants knew that many of the listed references were of minimal or no relevance. Notwithstanding the large size of the IDS disclosure, none of the Applicants identified the references of most significance or the pertinent portions of the listed references.

69. Additionally, the '328 Application IDS listed nearly all of the cited references in increasing numerical order. However, like the '116 Application, at the very end of the lengthy list, one or more of the Applicants buried a few U.S. patents out of order. These "out-of-order" patents included the '781 patent as well as certain other material prior art references. On information and belief, one or more of the Applicants knowingly and intentionally buried the '781 patent, and certain other material references, at the end of the list to obscure those references from the Patent Examiner.

70. Upon information and belief, the out-of-order listing of the '781 patent in the April 2003 IDS was not accidental, particularly given that one or more of the Applicants were intimately aware of the '781 patent, and its materiality, long before preparing the IDS (e.g., given Cordis' long-standing license under the '781 patent as of the April 2003 IDS date). Moreover, the Applicants had nearly two years to correct the erroneously ordered IDS from the '116 Application, but intentionally did not do so in order to obscure the '781 patent and other material references.

71. The aforementioned conduct in connection with '328 Application was motivated by, and accomplished with, the intent to deceive the PTO into granting a patent based on the '328 Application. Ultimately, the Patent Examiner allowed claims substantially similar to, if not broader than, the claims of the Falotico '473 patent without raising any rejections based on the '781 patent.

72. In the subsequent applications leading to the Falotico '473 patent, one or more of the Applicants listed more than 900 references – totaling approximately 19,000 pages – in IDSs. The listed references included over 500 patents and printed publications as well as select papers from various proceedings. Upon information and belief, one or more of the Applicants knew

that the vast majority of the approximately 19,000 pages were of minimal or no relevance. Notwithstanding the large size of the IDS disclosures, none of the Applicants identified the references of most significance or the pertinent portions of the listed references.

73. Further, the Patent Examiner responsible (at least in part) for the '568, '117, and '328 Applications was the same Patent Examiner responsible for the subsequent applications leading to the Falotico '473 patent. One or more of the Applicants knew that it would he impossible for the Patent Examiner to effectively analyze 19,000 pages to uncover material prior art and/or papers that contradicted the pending claims. They also knew that, hased on their prior inequitable conduct, the same Patent Examiner had already allowed claims that had essentially the same or broader scope. Having already obtained essentially the same or broader claims from the same Patent Examiner, one or more of the Applicants knew that the Patent Examiner likely would not raise prior art rejections against narrower or like claims. Only then did the Applicants finally list (a) the '781 patent in numerical order in the IDS submissions (albeit as part of a massive list of approximately 900 references) and (b) a large number of additional patents and papers from other proceedings.

74. During the prosecution of the applications leading to the Falotico '473 patent, none of the Applicants informed the Patent Examiner of the materiality of the '781 patent or Cordis' licensing relationship with respect to that patent. Nor did they inform the Patent Examiner of any prior patents or papers from other proceedings that refuted, or were inconsistent with, the patentability of the pending claims.

75. The aforementioned conduct in connection with the applications leading to the Falotico '473 patent was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent. In accordance with the Applicants' improper conduct, the

Patent Examiner ultimately allowed the Falotico '473 patent without raising any rejections based on the prior art patents or proceeding papers generally, or the '781 patent specifically (only obviousness-type double patenting rejections were raised).

76. In sum, as shown by the examples above, one or more of the Applicants knowingly and intentionally sought to deceive the PTO by obscuring, hiding, or concealing highly material prior art patents, publications, and/or papers from other proceedings that refuted, or were inconsistent with, the patentability of the claims pursued in the applications leading to the Falotico '473 patent. As noted previously, BSC believes that additional examples likely will have evidentiary support after a reasonable opportunity for further investigation and discovery. This intentional conduct, which occurred throughout the prosecution of the applications leading to the Falotico '473 patent, renders the Falotico '473 patent unenforceable.

77. As another example of the inequitable conduct before the PTO that renders the Falotico '473 patent unenforceable, as part of the filing and prosecution of the application leading to the Falotico '473 patent, one or more of the Applicants failed to disclose material information from related patent prosecution.

78. For instance, on May 7, 2001, Cordis filed U.S. Patent Application Serial No. 09/850,482 ("the '482 Application"). The '482 Application is related to the Falotico '473 patent. It claims priority, at least in part, to the '568 Application, which is in the chain of applications leading to the Falotico '473 patent. Further, the '482 Application and the Falotico '473 patent share named inventors. The Patent Examiner responsible for the '482 Application was different than the Patent Examiner responsible for the application leading to the Falotico '473 patent.

79. In the '482 Application, Cordis sought claims directed to a stent with, among other things, a polymer matrix on its outer surface that incorporates rapamycin. The Patent

Examiner for the '482 Application twice rejected the rapamycin claims as obvious in view of, among other things, (a) the '781 patent because it specifically teaches the use and delivery of rapamycin via a stent to treat restenosis and (b) the well-known properties of rapamycin:

> Ragheb at al. as modified by Chudzik et al. disclose the invention with the exception of the anti-proliferative compound of rapamycin. Although, Ragheb et al. discuss using the invention for preventing restenosis such as from chronic remodeling and neointimal hyperplasia, reducing proliferation, and other needs for anti-proliferative therapy, the drug rapamycin is not explicitly recited.
>
> On the other hand, [the '781 patent] teaches of rapamycin as an anti-proliferative for use via stents. Therefore, it would be obvious to one with ordinary skill in the art to modify the invention of Ragheb et al. to include rapamycin for the purpose of utilizing its superior qualities as an anti-proliferative as taught by [the '781 patent]. Furthermore, rapamycin is known for its antiinflammatory and anti-proliferative properties, as seen in the Appendix. Therefore, it would be within the scope of the invention to include rapamycin as an obvious choice of antiproliferatives.

(2/7/03 Office Action from '482 Application at ¶ 5; *see also* 10/17/02 Office Action from '482 Application at ¶ 6 ("Ragheb at al. disclose the invention with the exception of the antiproliferative compound of rapamycin that is incorporated in a polymer matrix onto the outer surface of the [stent] bands . . . . On the other hand, [the '781 patent] teach[es] of rapamycin as an anti-proliferative. Therefore, it would be obvious to one with ordinary skill in the art to modify the invention of Ragheb et al. to include rapamycin for the purpose of utilizing its superior qualities as an anti-proliferative as taught by [the '781 patent].").) Cordis was unable to overcome these rejections.

80. Upon information and belief, a reasonable Patent Examiner would have considered the '482 Application prosecution (including any discussions of the '781 patent) important to the patentability of the claims in the application leading to the Falotico '473 patent.

81. Upon information and belief, one or more of the Applicants knew of the '482 Application prosecution and its materiality during prosecution of the application leading to the Falotico '473 patent and nevertheless failed to cite it to the PTO. This failure to disclose highly material information from the '482 Application prosecution was motivated by, and accomplished with, the intent to deceive the PTO into granting the Falotico '473 patent.

82. These examples of intentional and deceptive acts, as described in the above paragraphs constitute inequitable conduct such that the Falotico '473 patent is unenforceable.

PRAYER FOR RELIEF

WHEREFORE, BSC prays that this Court enter judgment as follows, ordering that:

(a) Each and every claim of U.S. Patent No. 7,229,473 is invalid and unenforceable due to inequitable conduct before the PTO;

(b) Plaintiffs are not liable for directly, contributorily or inducing infringement of any claim of U.S. Patent No. 7,229,473;

(c) Defendants and their officers, agents, employees, representatives, counsel and all persons in active concert or participation with any of them, directly or indirectly, be enjoined from threatening or charging infringement of, or instituting any action for infringement of U.S. Patent No. 7,229,473 against Plaintiffs, its suppliers, customers, distributors or users of its products;

(d) Defendants pay to Plaintiffs the costs and reasonable attorney's fees incurred by Plaintiffs in this action; and

(e) Plaintiffs be granted such other and further relief as this Court deems just and proper.

DEMAND FOR JURY TRIAL

Plaintiffs demand a trial by jury on all issues so triable.

YOUNG CONAWAY STARGATT &
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Dated: December 23, 2008

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EXHIBIT A

US007229473B2

(12) **United States Patent**
Falotico et al.

(10) **Patent No.: US 7,229,473 B2**
(45) **Date of Patent: *Jun. 12, 2007**

(54) **LOCAL DELIVERY OF RAPAMYCIN FOR TREATMENT OF PROLIFERATIVE SEQUELAE ASSOCIATED WITH PTCA PROCEDURES, INCLUDING DELIVERY USING A MODIFIED STENT**

(75) Inventors: **Robert Falotico**, Bell Mead, NJ (US); **Gerard H. Llanos**, Stewartsville, NJ (US)

(73) Assignee: **Cordis Corporation**, Miami Lakes, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/466,983**

(22) Filed: **Aug. 24, 2006**

(65) **Prior Publication Data**

US 2006/0282160 A1 Dec. 14, 2006

Related U.S. Application Data

(63) Continuation of application No. 10/951,385, filed on Sep. 28, 2004, which is a continuation of application No. 10/408,328, filed on Apr. 7, 2003, now Pat. No. 6,808,536, which is a continuation of application No. 09/874,117, filed on Jun. 4, 2001, now Pat. No. 6,585,764, which is a continuation of application No. 09/061,586, filed on Apr. 16, 1998, now Pat. No. 6,273,913.

(60) Provisional application No. 60/044,692, filed on Apr. 18, 1997.

(51) **Int. Cl.**
A61F 2/06 (2006.01)

(52) **U.S. Cl.** 623/1.42

(58) **Field of Classification Search** 623/1.42–1.48
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

861,659	A	7/1907	Johnston	464/147
3,051,677	A	8/1962	Rexford	522/156
3,279,996	A	10/1966	Long et al.	424/424
3,526,005	A	9/1970	Bokros	623/11.11
3,599,641	A	8/1971	Sheridan	604/256
3,657,744	A	4/1972	Ersek	128/898
3,744,596	A	7/1973	Sander	188/203
3,779,805	A	12/1973	Alsberg	427/105

(Continued)

FOREIGN PATENT DOCUMENTS

DE 3205942 A1 9/1983

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 07/819,314, filed Jan. 9, 1992, Morris.

(Continued)

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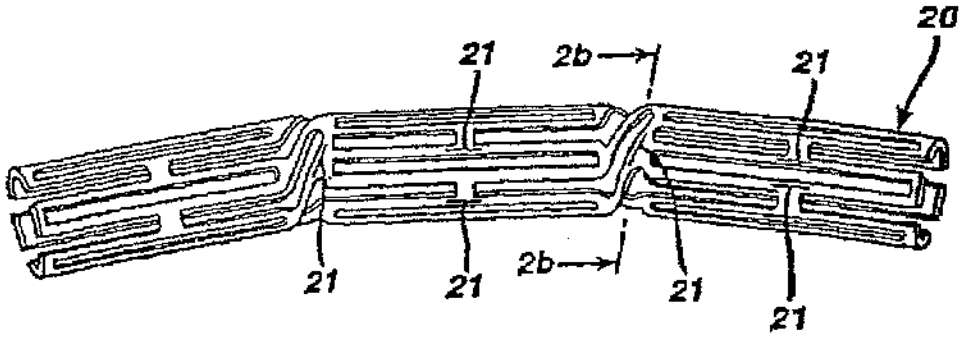
(57) **ABSTRACT**

Methods of preparing intravascular stents with a polymeric coating containing macrocyclic lactone (such as rapamycin or its analogs), stents and stent grafts with such coatings, and methods of treating a coronary artery with such devices. The macrocyclic lactone-based polymeric coating facilitates the performance of such devices in inhibiting restenosis.

5 Claims, 2 Drawing Sheets



U.S. PATENT DOCUMENTS

3,929,992	A	12/1975	Schgal et al.	424/122
3,932,627	A	1/1976	Margraf	514/56
3,948,254	A	4/1976	Zaffaroni	128/833
3,952,334	A	4/1976	Bokros et al.	623/11.11
3,968,800	A	7/1976	Vilasi	606/198
4,069,307	A	1/1978	Higuchi et al.	424/432
4,076,285	A	2/1978	Martinez	285/332
4,292,965	A	10/1981	Nash et al.	128/833
4,299,226	A	11/1981	Banka	604/509
4,300,244	A	11/1981	Bokros	623/1.13
4,312,920	A	1/1982	Pierce et al.	428/425.5
4,321,711	A	3/1982	Mano	623/1.43
4,323,071	A	4/1982	Simpson et al.	606/194
4,390,599	A	6/1983	Broyles	428/597
4,413,359	A	11/1983	Akiyama et al.	623/23.72
4,423,183	A	12/1983	Close	524/546
4,441,216	A	4/1984	Ionescu et al.	623/2.19
4,503,569	A	3/1985	Dotter	623/1.19
4,512,338	A	4/1985	Balko et al.	606/108
4,550,447	A	11/1985	Seiler, Jr. et al.	623/1.32
4,553,545	A	11/1985	Maass et al.	606/198
4,560,374	A	12/1985	Hammerslag	604/509
4,562,596	A	1/1986	Kornberg	623/1.32
4,565,740	A	1/1986	Golander et al.	428/409
4,580,568	A	4/1986	Gianturco	606/198
4,613,665	A	9/1986	Larm	536/20
4,642,111	A	2/1987	Sakamoto et al.	424/492
4,655,771	A	4/1987	Wallsten	623/1.22
4,656,083	A	4/1987	Hoffman et al.	442/123
4,676,243	A	6/1987	Webb et al.	128/207.14
4,678,466	A	7/1987	Rosenwald	424/427
4,687,482	A	8/1987	Hanson	623/1.49
4,689,046	A	8/1987	Bokros	623/2.31
4,731,054	A	3/1988	Billeter et al.	604/93.01
4,733,665	A	3/1988	Palmaz	606/108
4,739,762	A	4/1988	Palmaz	623/1.11
4,740,207	A	4/1988	Kreamer	623/1.15
4,749,585	A	6/1988	Greco et al.	428/422
4,753,652	A	6/1988	Langer et al.	623/1.42
4,760,849	A	8/1988	Kropf	606/191
4,768,507	A	9/1988	Fischell et al.	623/1.11
4,776,337	A	10/1988	Palmaz	623/1.11
4,786,500	A	11/1988	Wong	424/422
4,787,899	A	11/1988	Lazarus	623/1.11
4,800,882	A	1/1989	Gianturco	606/194
4,810,784	A	3/1989	Larm	536/20
4,856,516	A	8/1989	Hillstead	606/194
4,871,357	A	10/1989	Hsu et al.	604/266
4,872,867	A	10/1989	Joh	604/269
4,876,109	A	10/1989	Mayer et al.	604/269
4,886,062	A	12/1989	Wiktor	606/194
4,907,336	A	3/1990	Gianturco	29/515
4,916,193	A	4/1990	Tang et al.	525/413
4,954,126	A	9/1990	Wallsten	600/36
4,969,458	A	11/1990	Wiktor	623/1.11
4,990,131	A	2/1991	Dardik et al.	600/36
4,990,155	A	2/1991	Wilkoff	606/191
4,994,071	A	2/1991	MacGregor	606/194
4,994,298	A	2/1991	Yasuda	427/490
4,998,923	A	3/1991	Samson et al.	606/194
5,015,253	A	5/1991	MacGregor	623/1.15
5,019,090	A	5/1991	Pinchuk	623/1.15
5,019,096	A	5/1991	Fox, Jr. et al.	600/36
5,029,877	A	7/1991	Fedeli	277/354
5,034,265	A	7/1991	Hoffman et al.	442/126
5,035,706	A	7/1991	Gianturco et al.	606/198
5,041,100	A	8/1991	Rowland et al.	604/265
5,041,126	A	8/1991	Gianturco	623/1.15
5,047,020	A	9/1991	Hsu	604/266
5,049,132	A	9/1991	Shaffer et al.	604/101.02
5,049,403	A	9/1991	Larm et al.	427/2.1
5,053,048	A	10/1991	Pinchuk	623/1.43
5,059,166	A	10/1991	Fischell et al.	600/3
5,061,275	A	10/1991	Wallsten et al.	623/1.22
5,061,750	A	10/1991	Feijen et al.	525/54.1
5,064,435	A	11/1991	Porter	623/23.7
5,092,877	A	3/1992	Pinchuk	128/898
5,102,417	A	4/1992	Palmaz	606/195
5,104,404	A	4/1992	Wolff	623/1.16
5,116,365	A	5/1992	Hillstead	623/1.15
5,122,154	A	6/1992	Rhodes	623/1.13
5,131,908	A	7/1992	Dardik et al.	600/36
5,133,732	A	7/1992	Wiktor	623/1.22
5,134,192	A	7/1992	Feijen et al.	525/54.1
5,135,536	A	8/1992	Hillstead	606/195
5,163,952	A	11/1992	Froix	623/1.18
5,163,958	A	11/1992	Pinchuk	623/23.49
5,171,217	A	12/1992	March et al.	604/507
5,171,262	A	12/1992	MacGregor	623/1.15
5,176,660	A	1/1993	Truckai	604/527
5,176,972	A	1/1993	Bloom et al.	430/14
5,178,618	A	1/1993	Kandarpa	606/28
5,180,366	A	1/1993	Woods	604/96.01
5,182,317	A	1/1993	Winters et al.	523/112
5,185,408	A	2/1993	Tang et al.	525/415
5,192,307	A	3/1993	Wall	623/1.2
5,195,984	A	3/1993	Schatz	623/1.2
5,213,576	A	5/1993	Abiuso et al.	604/103.01
5,213,898	A	5/1993	Larm et al.	428/422
5,217,483	A	6/1993	Tower	623/1.15
5,222,971	A	6/1993	Willard et al.	606/198
5,226,913	A	7/1993	Pinchuk	140/71 R
5,234,456	A	8/1993	Silvestrini	623/1.2
5,246,445	A	9/1993	Yachia et al.	623/1.2
5,258,020	A	11/1993	Froix	128/898
5,258,021	A	11/1993	Duran	623/2.3
5,262,451	A	11/1993	Winters et al.	523/112
5,266,073	A	11/1993	Wall	623/1.2
5,272,012	A	12/1993	Opolski	428/423.1
4,733,665	A	1/1994	Palmaz	606/108
5,275,622	A	1/1994	Lazarus et al.	623/1.11
5,282,823	A	2/1994	Schwartz et al.	623/1.22
5,282,824	A	2/1994	Gianturco	623/1.13
5,283,257	A	2/1994	Gregory et al.	514/458
5,288,711	A	2/1994	Mitchell et al.	424/122
5,290,305	A	3/1994	Inoue	623/1.2
5,292,331	A	3/1994	Boneau	623/1.16
5,292,802	A	3/1994	Rhee et al.	525/54.1
5,304,121	A	4/1994	Sahatjian	604/509
5,304,200	A	4/1994	Spaulding	623/1.16
5,306,250	A	4/1994	March et al.	604/104
5,308,862	A	5/1994	Ohlstein	514/411
5,308,889	A	5/1994	Rhee et al.	523/113
5,314,444	A	5/1994	Gianturco	606/195
5,314,472	A	5/1994	Fontaine	623/1.22
5,328,471	A	7/1994	Slepian	604/101.03
5,334,301	A	8/1994	Heinke et al.	204/267
5,336,518	A	8/1994	Narayanan et al.	427/470
5,338,770	A	8/1994	Winters et al.	523/112
5,342,348	A	8/1994	Kaplan	604/891.1
5,342,387	A	8/1994	Summers	606/198
5,342,621	A	8/1994	Eury	606/198
5,354,257	A	10/1994	Roubin et al.	600/7
5,354,308	A	10/1994	Simon et al.	623/1.15
5,356,433	A	10/1994	Rowland et al.	424/422
5,366,504	A	11/1994	Andersen et al.	623/1.5
5,368,566	A	11/1994	Crocker	604/101.02
5,370,683	A	12/1994	Fontaine	623/1.22
5,370,691	A	12/1994	Samson	623/1.22
5,375,612	A	12/1994	Cottenceau et al.	128/899
5,376,112	A	12/1994	Duran	623/1.26
5,378,475	A	1/1995	Smith et al.	424/473
5,380,299	A	1/1995	Fearnot et al.	604/265
5,382,261	A	1/1995	Palmaz	606/158

5,383,853	A	1/1995	Jung et al.	604/103.04	5,607,475	A	3/1997	Cahalan et al.	424/423
5,383,928	A	1/1995	Scott et al.	623/1.12	5,609,629	A	3/1997	Fearnot et al.	623/1.42
5,387,235	A	2/1995	Chuter	623/1.11	5,616,608	A	4/1997	Kinsella et al.	514/449
5,389,106	A	2/1995	Tower	623/1.15	5,620,984	A	4/1997	Bianco et al.	514/263.36
5,393,772	A	2/1995	Yue et al.	514/410	5,621,102	A	4/1997	Bianco et al.	544/267
5,395,390	A	3/1995	Simon et al.	623/1.18	5,622,975	A	4/1997	Singh et al.	514/324
5,397,355	A	3/1995	Marin et al.	623/1.2	5,624,411	A	4/1997	Tuch	604/265
5,399,352	A	3/1995	Hanson	424/423	5,628,785	A	5/1997	Schwartz et al.	128/898
5,403,341	A	4/1995	Solar	606/198	5,629,077	A	5/1997	Turnlund et al.	623/1.15
5,405,377	A	4/1995	Cragg	623/1.2	5,629,315	A	5/1997	Bianco et al.	514/263.36
5,409,696	A	4/1995	Narayanan et al.	424/78.17	5,632,763	A	5/1997	Glastra	623/1.15
5,411,549	A	5/1995	Peters	623/1.15	5,632,771	A	5/1997	Boatman et al.	623/1.15
5,415,619	A	5/1995	Lee et al.	600/36	5,632,776	A	5/1997	Kurumatani et al.	424/423
5,417,969	A	5/1995	Hsu et al.	424/78.27	5,632,840	A	5/1997	Campbell	156/196
5,419,760	A	5/1995	Narcisco, Jr.	604/8	5,635,201	A	6/1997	Fabo	424/443
D359,802	S	6/1995	Fontaine	D24/155	5,637,113	A	6/1997	Tartaglia et al.	623/1.42
5,421,955	A	6/1995	Lau et al.	216/48	5,643,312	A	7/1997	Fischell et al.	623/1.15
5,423,885	A	6/1995	Williams	623/1.17	5,643,939	A	7/1997	Ohlstein	514/411
5,429,618	A	7/1995	Keogh	604/266	5,646,160	A	7/1997	Morris et al	514/291
5,429,634	A	7/1995	Narciso, Jr.	604/890.1	5,648,357	A	7/1997	Bianco et al.	514/263.36
5,439,446	A	8/1995	Barry	604/103.01	5,649,952	A	7/1997	Lam	623/1.15
5,441,515	A	8/1995	Khosravi et al.	606/194	5,649,977	A	7/1997	Campbell	623/1.15
5,441,516	A	8/1995	Wang et al.	606/198	5,651,174	A	7/1997	Schwartz et al.	29/527.2
5,441,947	A	8/1995	Dodge et al.	514/179	5,652,243	A	7/1997	Bianco et al.	514/263.36
5,443,458	A	8/1995	Evry	604/891.1	5,653,747	A	8/1997	Dereume	623/1.54
5,443,477	A	8/1995	Marin et al.	606/198	5,653,992	A	8/1997	Bezwada et al.	424/426
5,443,496	A	8/1995	Schwartz et al.	623/1.16	5,662,609	A	9/1997	Slepian	604/101.03
5,443,498	A	8/1995	Fontaine	623/1.17	5,665,591	A	9/1997	Sonenshein et al.	435/375
5,443,500	A	8/1995	Sigwart	623/1.17	5,665,728	A	9/1997	Morris et al.	424/122
5,447,724	A	9/1995	Helmus et al.	424/426	5,667,764	A	9/1997	Kopia et al.	424/1.45
5,449,372	A	9/1995	Schmaltz et al.	606/198	5,669,924	A	9/1997	Shaknovich	623/1.11
5,449,373	A	9/1995	Pinchasik et al.	606/198	5,670,506	A	9/1997	Leigh et al.	514/441
5,449,382	A	9/1995	Dayton	623/1.15	5,672,638	A	9/1997	Verhoeven et al.	523/112
5,464,450	A	11/1995	Buscemi et al.	623/1.2	5,674,242	A	10/1997	Phan et al.	606/198
5,464,540	A	11/1995	Friesen et al.	210/640	5,679,400	A	10/1997	Tuch	427/2.24
5,464,650	A	11/1995	Berg et al.	427/2.3	5,679,659	A	10/1997	Verhoeven et al.	514/56
5,474,563	A	12/1995	Myler et al.	606/108	5,684,061	A	11/1997	Ohnishi et al.	523/114
5,486,357	A	1/1996	Narayanan	424/78.17	5,691,311	A	11/1997	Maraganore et al.	514/12
5,496,365	A	3/1996	Sgro	623/1.2	5,693,085	A	12/1997	Buirge et al.	623/1.13
5,500,013	A	3/1996	Buscemi et al.	623/1.22	5,697,967	A	12/1997	Dinh et al.	128/898
5,510,077	A	4/1996	Dinh et al.	264/485	5,697,971	A	12/1997	Fischell et al.	623/1.15
5,512,055	A	4/1996	Domb et al.	604/265	5,700,286	A	12/1997	Tartaglia et al.	623/1.15
5,516,781	A	5/1996	Morris et al.	514/291	5,707,385	A	1/1998	Williams	606/192
5,519,042	A	5/1996	Morris et al.	514/378	5,709,874	A	1/1998	Hanson et al.	424/423
5,523,092	A	6/1996	Hanson et al.	424/423	5,713,949	A	2/1998	Jayaraman	623/1.12
5,527,354	A	6/1996	Fontaine et al.	623/1.17	5,716,981	A	2/1998	Hunter et al.	514/449
5,545,208	A	8/1996	Wolff et al.	623/1.22	5,725,549	A	3/1998	Lam	623/1.15
5,551,954	A	9/1996	Buscemi et al.	623/1.15	5,725,567	A	3/1998	Wolff et al.	623/1.42
5,554,182	A	9/1996	Dinh et al.	600/36	5,728,150	A	3/1998	McDonald et al.	623/1.15
5,554,954	A	9/1996	Takahashi	327/546	5,728,420	A	3/1998	Keogh	427/2.12
5,556,413	A	9/1996	Lam	623/1.2	5,731,326	A	3/1998	Hart et al.	514/323
5,562,922	A	10/1996	Lambert	424/486	5,733,327	A	3/1998	Igaki et al.	623/1.5
5,563,146	A	10/1996	Morris	514/291	5,733,920	A	3/1998	Mansuri et al.	514/337
5,569,197	A	10/1996	Helmus	604/102.02	5,733,925	A	3/1998	Kunz et al.	514/449
5,569,295	A	10/1996	Lam	606/198	5,735,897	A	4/1998	Buirge	623/1.15
5,569,462	A	10/1996	Martinson et al.	424/423	5,739,138	A	4/1998	Bianco et al.	514/263.36
5,569,463	A	10/1996	Helmus et al.	424/426	5,755,734	A	5/1998	Richter et al.	606/194
5,571,089	A	11/1996	Crocker	604/103.01	5,755,772	A	5/1998	Evans et al.	128/898
5,571,166	A	11/1996	Dinh et al.	128/898	5,759,205	A	6/1998	Valentini	433/173
5,574,059	A	11/1996	Regunathan et al.	514/397	5,769,883	A	6/1998	Buscemi et al.	623/1.42
5,575,818	A	11/1996	Pinchuk	623/1.15	5,776,184	A	7/1998	Tuch	623/1.11
5,578,075	A	11/1996	Dayton	623/1.15	5,780,476	A	7/1998	Underiner et al.	514/263.36
5,580,873	A	12/1996	Bianco et al.	514/263.36	5,782,908	A	7/1998	Cahalan et al.	623/1.13
5,580,874	A	12/1996	Bianco et al.	514/263.36	5,788,979	A	8/1998	Alt et al.	424/426
5,591,140	A	1/1997	Narayanan et al.	604/269	5,792,106	A	8/1998	Mische	604/103.01
5,591,197	A	1/1997	Orth et al.	623/1.16	5,792,772	A	8/1998	Bianco et al.	514/263.36
5,591,224	A	1/1997	Schwartz et al.	623/1.22	5,798,372	A	8/1998	Davies et al.	514/356
5,591,227	A	1/1997	Dinh et al.	623/1.22	5,799,384	A	9/1998	Schwartz et al.	29/458
5,599,352	A	2/1997	Dinh et al.	128/898	5,800,507	A	9/1998	Schwartz	623/1.11
5,603,722	A	2/1997	Phan et al.	623/1.18	5,800,508	A	9/1998	Goicoechea et al.	623/1.15
5,604,283	A	2/1997	Wada et al.	524/236	5,807,861	A	9/1998	Klein et al.	514/263.35
5,605,696	A	2/1997	Eury et al.	424/423	5,811,447	A	9/1998	Kunz et al.	514/411
5,607,463	A	3/1997	Schwartz et al.	623/1.44	5,820,917	A	10/1998	Tuch	427/2.1

5,820,918	A	10/1998	Ronan et al.	427/2.1
5,824,048	A	10/1998	Tuch	128/898
5,824,049	A	10/1998	Ragheb et al.	623/1.44
5,827,587	A	10/1998	Fukushi	428/36.6
5,833,651	A	11/1998	Donovan et al.	604/509
5,837,008	A	11/1998	Berg et al.	128/898
5,837,313	A	11/1998	Ding et al.	427/2.21
5,843,120	A	12/1998	Israel et al.	623/1.15
5,843,166	A	12/1998	Lentz et al.	623/1.13
5,843,172	A	12/1998	Yan	623/1.42
5,849,034	A	12/1998	Schwartz	606/36
5,851,217	A	12/1998	Wolff et al.	606/191
5,851,231	A	12/1998	Wolff et al.	623/1.42
5,858,990	A	1/1999	Walsh	514/44
5,861,027	A	1/1999	Trapp	623/1.15
5,865,814	A	2/1999	Tuch	623/1.15
5,871,535	A	2/1999	Wolff et al.	128/898
5,873,904	A	2/1999	Ragheb et al.	623/1.13
5,876,433	A	3/1999	Lunn	623/1.15
5,877,224	A	3/1999	Brocchini et al.	514/772.2
5,879,697	A	3/1999	Ding et al.	424/422
5,882,335	A	3/1999	Leone et al.	604/103.02
5,891,108	A	4/1999	Leone et al.	604/264
5,893,840	A	4/1999	Hull et al.	604/103.02
5,897,911	A	4/1999	Loeffler	427/2.25
5,900,246	A	5/1999	Lambert	424/429
5,902,266	A	5/1999	Leone et al.	604/509
5,916,910	A	6/1999	Lai	514/423
5,922,393	A	7/1999	Jayaraman	427/2.3
5,932,243	A	8/1999	Fricker et al.	424/450
5,932,299	A	8/1999	Katoot	427/508
5,932,580	A	8/1999	Levitzki et al.	181/152
5,951,586	A	9/1999	Berg et al.	606/198
5,957,971	A	9/1999	Schwartz	623/1.15
5,968,091	A	10/1999	Pinchuk et al.	623/1.16
5,972,027	A	10/1999	Johnson	623/1.42
5,976,534	A	11/1999	Hart et al.	424/145.1
5,977,163	A	11/1999	Li et al.	514/449
5,980,553	A	11/1999	Gray et al.	623/1.15
5,980,566	A	11/1999	Alt et al.	623/23.7
5,980,972	A	11/1999	Ding	427/2.24
5,981,568	A	11/1999	Kunz et al.	514/411
5,985,307	A	11/1999	Hanson et al.	424/423
5,997,468	A	12/1999	Wolff et al.	606/36
6,004,346	A	12/1999	Wolff et al.	623/23.71
6,015,432	A	1/2000	Rakos et al.	623/1.13
6,039,721	A	3/2000	Johnson et al.	604/508
6,059,813	A	5/2000	Vrba et al.	606/198
6,071,305	A	6/2000	Brown et al.	623/1.43
6,074,659	A	6/2000	Kunz et al.	424/423
6,080,190	A	6/2000	Schwartz	623/1.22
6,096,070	A	8/2000	Ragheb et al.	623/1.39
6,120,536	A	9/2000	Ding et al.	623/1.43
6,120,847	A	9/2000	Yang et al.	427/335
6,136,798	A	10/2000	Cody et al.	514/141
6,140,127	A	10/2000	Sprague	435/395
6,146,358	A	11/2000	Rowe	604/103
6,153,252	A	11/2000	Hossainy et al.	427/2.3
6,159,488	A	12/2000	Nagler et al.	424/423
6,171,232	B1	1/2001	Papandreou et al.	600/36
6,171,609	B1	1/2001	Kunz	424/422
6,177,272	B1	1/2001	Nabel et al.	435/320.1
6,179,817	B1	1/2001	Zhong	604/265
6,193,746	B1	2/2001	Strecker	623/1.13
6,214,901	B1	4/2001	Chudzik et al.	623/113
6,225,346	B1	5/2001	Tang et al.	514/623
6,240,616	B1	6/2001	Yan	29/527.2
6,245,537	B1	6/2001	Williams et al.	435/135
6,251,920	B1	6/2001	Grainger et al.	514/319
6,254,632	B1	7/2001	Wu et al.	623/1.15
6,254,634	B1	7/2001	Anderson et al.	623/1.42
6,258,121	B1	7/2001	Yang et al.	623/1.46
6,268,390	B1	7/2001	Kunz	514/411
6,273,913	B1	8/2001	Wright et al.	623/1.42
6,284,305	B1	9/2001	Ding et al.	427/2.28
6,287,320	B1	9/2001	Slepian	606/194
6,287,628	B1	9/2001	Hossainy et al.	427/2.3
6,299,604	B1	10/2001	Ragheb et al.	604/265
6,306,144	B1	10/2001	Sydney et al.	606/108
6,306,166	B1	10/2001	Barry et al.	623/1.46
6,306,176	B1	10/2001	Whitbourne	623/23.59
6,306,421	B1	10/2001	Kunz et al.	424/423
6,309,380	B1	10/2001	Larson et al.	604/502
6,309,660	B1	10/2001	Hsu et al.	424/425
6,313,264	B1	11/2001	Caggiano et al.	530/350
6,316,018	B1	11/2001	Ding et al.	424/423
6,335,029	B1	1/2002	Kamath et al.	424/423
6,358,556	B1	3/2002	Ding et al.	427/2.24
6,369,039	B1	4/2002	Palasis et al.	424/93.2
6,379,382	B1	4/2002	Yang	623/1.42
6,387,121	B1	5/2002	Alt	623/1.15
6,403,635	B1	6/2002	Kinsella et al.	514/449
6,407,067	B1	6/2002	Schafer	514/19
6,517,858	B1	2/2003	Le Moel et al.	424/424
6,517,889	B1	2/2003	Jayaraman	427/2.24
6,545,097	B2	4/2003	Pinchuk et al.	525/240
6,585,764	B2	7/2003	Wright et al.	623/1.42
6,620,194	B2	9/2003	Ding et al.	623/1.43
6,746,773	B2	6/2004	Llanos et al	428/421
6,776,796	B2	8/2004	Falotico et al.	623/1.46
6,808,536	B2	10/2004	Wright et al.	623/1.42
2001/0007083	A1	7/2001	Roorda	623/1.15
2001/0029351	A1	10/2001	Falotico et al.	604/103.02
2001/0029660	A1	10/2001	Johnson	29/557
2001/0032014	A1	10/2001	Yang et al.	623/1.15
2001/0034363	A1	10/2001	Li et al.	514/449
2001/0037145	A1	11/2001	Guruwaiya et al.	623/1.15
2002/0010418	A1	1/2002	Lary et al.	604/103.04
2002/0032477	A1	3/2002	Helmus et al.	623/1.2
2002/0041899	A1	4/2002	Chudzik et al.	424/487
2002/0061326	A1	5/2002	Li et al.	424/424
2002/0068969	A1	6/2002	Shanley et al.	623/1.16
2002/0071902	A1	6/2002	Ding et al.	427/2.24
2002/0082680	A1	6/2002	Shanley et al.	623/1.16
2002/0082685	A1	6/2002	Sirhan et al.	623/1.42
2002/0091433	A1	7/2002	Ding et al.	623/1.2
2002/0095114	A1	7/2002	Palasis	604/96.01
2002/0099438	A1	7/2002	Furst	623/1.16
2002/0103526	A1	8/2002	Steinke	623/1.11
2002/0119178	A1	8/2002	Levesque et al.	424/423
2002/0123505	A1	9/2002	Mollison et al.	514/291
2002/0127327	A1	9/2002	Schwartz et al.	427/2.15
2002/0133222	A1	9/2002	Das	623/1.16
2002/0133224	A1	9/2002	Bajgar et al.	623/1.39
2002/0165608	A1	11/2002	Llanos	604/500
2002/0193475	A1	12/2002	Hossainy et al.	524/113
2003/0065377	A1	4/2003	Davila et al.	604/265
2003/0216699	A1	11/2003	Falotico	604/265
2004/0049265	A1	3/2004	Ding et al.	623/1.42
2004/0243097	A1	12/2004	Falotico et al.	604/500
2004/0260268	A1	12/2004	Falotico et al.	604/500
2005/0002986	A1	1/2005	Falotico et al.	424/426
2005/0004663	A1	1/2005	Llanos et al.	623/1.46
2005/0033261	A1	2/2005	Falotico et al.	604/500
2005/0106210	A1	5/2005	Ding et al.	424/423
2005/0187611	A1	8/2005	Ding et al.	623/1.15
2005/0208200	A1	9/2005	Ding et al.	427/2.25
2006/0088654	A1	4/2006	Ding et al.	427/2.21
2006/0089705	A1	4/2006	Ding et al.	623/1.15

FOREIGN PATENT DOCUMENTS

DE	19723723	A1	12/1998
EP	0 145 166	A2	6/1985
EP	0 177 330	A2	4/1986
EP	0 183 372	A1	6/1986

EP	0 221 570	A2 5/1987
EP	0 421 729	A2 4/1991
EP	0 540 290	A2 5/1993
EP	0 568 310	A1 11/1993
EP	0 604 022	A1 6/1994
EP	0 621 015	A1 10/1994
EP	0 623 354	A1 11/1994
EP	0 712 615	A1 5/1996
EP	0 716 836	A1 6/1996
EP	0 734 721	A2 10/1996
EP	0 747 069	A2 12/1996
EP	0 761 251	A1 3/1997
EP	0 800 801	A1 10/1997
EP	0 540 290	B1 1/1998
EP	0 830 853	A1 3/1998
EP	0 815 803	A1 7/1998
EP	0 850 651	A2 7/1998
EP	0 938 878	A2 9/1999
EP	0 938 878	A3 9/1999
EP	0 950 386	A2 10/1999
EP	0 968 688	A1 1/2000
EP	0 633 032	B1 2/2001
EP	1 192 957	A2 4/2002
EP	1 588 726	A1 10/2005
EP	1 588 727	A1 10/2005
FR	566 807	A1 4/1992
GB	0 662 307	A2 12/1951
GB	1 205 743	A 9/1970
GB	2 135 585	A 9/1984
JP	0 734 698	A2 3/1996
SU	660689	5/1979
SU	1457921	2/1989
WO	89/03232	A1 4/1989
WO	91/12779	A1 9/1991
WO	92/15286	A1 9/1992
WO	94/01056	A1 1/1994
WO	94/21308	A1 9/1994
WO	94/21309	A1 9/1994
WO	94/24961	A1 11/1994
WO	96/00272	A1 1/1996
WO	96/26689	A1 9/1996
WO	96/32907	A1 10/1996
WO	96/34580	A1 11/1996
WO	97/25000	A1 7/1997
WO	97/33534	A1 9/1997
WO	98/08463	A1 3/1998
WO	98/13344	A1 4/1998
WO	98/19628	A1 5/1998
WO	98/23228	A1 6/1998
WO	98/23244	A1 6/1998
WO	98/34669	A1 8/1998
WO	98/36784	A1 8/1998
WO	98/47447	A1 10/1998
WO	98/56312	A1 12/1998
WO	00/21584	A1 4/2000
WO	00/27445	A1 5/2000
WO	00/27455	A1 5/2000
WO	00/32255	A1 6/2000
WO	00/38754	A1 7/2000
WO	01/87342	A2 11/2001
WO	01/87372	A1 11/2001
WO	01/87373	A1 11/2001
WO	01/87376	A1 11/2001
WO	02/26139	A1 4/2002
WO	02/26271	A1 4/2002
WO	02/26280	A1 4/2002
WO	02/26281	A1 4/2002
WO	03/015664	A1 2/2003
WO	03/057218	A1 7/2003

OTHER PUBLICATIONS

U.S. Appl. No. 08/424,884, filed Apr. 19, 1995, Helmus et al.
U.S. Appl. No. 08/526,273, filed Sep. 11, 1995, Ding.
U.S. Appl. No. 08/730,542, filed Oct. 11, 1996, Helmus.
U.S. Appl. No. 09/575,480, filed May 19, 2000, Kopia.
U.S. Appl. No. 10/431,059, filed May 7, 2003, Falotico.
U.S. Appl. No. 10/829,074, filed Apr. 21, 2004, Falotico et al.
U.S. Appl. No. 10/833,200, filed Apr. 27, 2004, Falotico et al.
U.S. Appl. No. 10/852,517, filed May 24, 2004, Falotico et al.

Abraham, R. T., "Mammalian target of rapamycin: Immunosuppressive drugs offer new insight into cell growth regualtion," *Progress in Inflammation Research*, 2000, Switzerland.

Alvarado, R. et al., "Evaluation of Polymer-coated Balloon-expandable Stents in Bile Ducts," *Radiology*, 1989, 170, 975-978.

Badimon, J. J. et al., "Inhibitory Effects of Rapamycin on Intimal Hyperplasia After PTCA," *JACC*, Mar. 1998.

Bailey et al., "Polymer Coating of Palmaz-Schatz Stent Attenuates Vascular Spasm after Stent Placement," *Circulation*, 82:III-541 (1990).

Berk, B. C. et al., "Pharmacologic Roles of Heparin and Glucocorticoids to Prevent Restenosis After Coronary Angioplasty," *JACC*, May 1991, 17(6), 111B-117B.

Bertram, P. G. et al., "The 14-3-3 proteins positively regulate rapamycin-sensitive signaling," *Current Biology*, 1998, 8, 1259-1267.

Biomaterials Science (B.D. Ratner, Ed.), Academic Press, New York, NY, pp. 228-238, 1996.

Campbell, G. R. et al., "Phenotypic Modulation of Smooth Muscle Cells in Primary Culture, Vascular Smooth Muscle Cells in Culture," *CRC Press*, 1987, 39-55.

Chang, M. W. et al., "Adenovirus-mediated Over-expression of the Cyclin/Cyclin-dependent Kinase inhibitor, p. 21 inhibits Vascular Smooth Muscle Cell Proliferation and Neointima Formation in the Rat Carotid Artery Model of Balloon Angioplasty," *J. Clin. Invest.*, 1995, 96, 2260-2268.

Chung, J. et al., "Rapamycin-FKBP specifically blocks growth-dependent activation of and signaling by the 70 kd S6 protein kinases," *Cell*, Jun. 26, 1992, 69(7), 1227-1236.

Clowes, A. W. et al., "Kinetics of cellular proliferation after arterial injury. IV. Heparin inhibits rat smooth muscle mitogenesis and migration," *Circ. Res.*, 1986, 58(6), 839-845.

Clowes, A. W. et al., Kinetics of Cellular Proliferation after Arterial Injury, *Laboratory Investigation*, 1985, 52(6), 611-616.

Clowes, A. W. et al., "Significance of quiescent smooth muscle migration in the injured rat carotid artery," *Circ Res.* 1985, 56(1), 139-145.

Clowes, A. W., "Suppression by heparin of smooth muscle cell proliferation in injured arteries," *Nature*, 1977, 265(5595), 625-626.

Colburn, M. D. et al., "Dose responsive suppression of myointimal hyperplasia by dexamethasone," *J. Vasc. Surg.*, 1992, 15, 510-518.

Currier, J. W. et al., "Colchicine Inhibits Restenosis After Iliac Angioplasty in the Atherosclerotic Rabbit," *Circ.*, 1989, 80(4), II-66 (Abstract No. 0263).

Encyclopedia of Polymer Science and Engineering, vol. 7, Fluorocarbon Elastomers, p. 257-267, Mar. 1989.

Farb, A. et al., "Vascular smooth muscle cell cytotoxicity and sustained inhibition of neointimal formation by fibroblast growth factor 2-saporin fusion protein," *Circ. Res.*, 1997, 80, 542-550.

Ferns, G. A. A. et al., "Inhibition of Neointimal Smooth Muscle Accumulation After Angioplasty by an Antibody to PDGF," *Science*, 1991, 253, 1129-1132.

Fischman, D. L. et al., "A Randomized Comparison of Coronary-Stent Placement and Balloon Angioplasty in the Treatment of Coronary Artery Disease," *N. Eng. J. Med.*, Aug. 25, 1994, 331(8), 496-501.

Franklin, S. M. et al., "Pharmacologic prevention of restenosis after coronary angioplasty: review of the randomized clinical trials," *Coronary Artery Disease* Mar. 1993, 4(3), 232-242.

Fukuyama, J. et al., "Tranilast suppresses the vascular intimal hyperplasia after balloon injury in rabbits fed on a high-cholesterol diet," *Eur. J. Pharmacol.*, 1996, 318, 327-332.
Gregory, C. R. et al., "Rapamycin Inhibits Arterial Intimal Thickening Caused by Both Alloimmune and Mechanical Injury," *Transplantation*, Jun. 1993, 55(6), 1409-1418.
Gregory, C. R. et al, "Treatment with Rapamycin and Mycophenolic Acid Reduces Arterial Intimal Thickening Produced by Mechanical Injury and Allows Endothelial Replacement," *Transplantation*, Mar. 15, 1995, 59(5), 655-661.
Guyton, J. R. et al., "Inhibition of rat arterial smooth muscle cell proliferation by heparin. In vivo studies with anticoagulant and nonanticoagulant heparin," *Circ. Res.*, 1980, 46, 625-634.
Hansson, G. K. et al., "Interferon-γ Inhibits Arterial Stenosis After Injury," *Circ.*, 1991, 84, 1266-1272.
Hashemolhosseini, S. et al., "Rapamycin Inhibition of the G1 to S Transition Is Mediated by Effects on Cyclin D1 mRNA and Protein Stability," *J Biol Chem*, Jun. 5, 1998, 273, 14424-14429.
Jonasson, J. et al., "Cyclosporin A inhibits smooth muscle proliferation in the vascular response to injury," *Proc. Natl., Acad. Sci.*, 1988, 85, 2303-2306.
Kuhnt, M. et al., "Microbial Conversion of Rapamycin," *Enzyme and Microbial Technology*, 1997, 21, 405-412.
Lange, R. A. MD et al., "Restenosis After Coronary Balloon Angioplasty," *Annu. Rev. Med.*, 1991, 42, 127-132.
Liu, M. W. et al., "Trapidil in Preventing Restenosis After Balloon Angioplasty in the Atherosclerotic Rabbit," *Circ.*, 1990, 81, 1089-1093.
Liu, M. W., MD et al., "Restenosis After Coronary Angioplasty Potential Biologic Determinants and Role of Intimal Hyperplasia," *Circulation*, 1989, 79, 1374-1387.
Lundergan, C. F. et al., "Peptide inhibition of Myointimal Proliferation by Angiopeptin, a Somatostatin Analogue," *JACC*, May 1991, 17(6), 132B-136B.
Majesky, M. W. et al., "Heparin regulates smooth muscle S phase entry in the injured rat carotoid artery," *Circ. Res.*, 1987, 61, 296-300.
Marx, S. O. et al., "Rapamycin-FKBP Inhibits Cell Cycle Regulators of Proliferation in Vascular Smooth Muscle Cells," *Circ. Res.*, 1995, 76, 412-417.
Nemecek, G. M. et al., "Terbinafine Inhibits the Mitogenic Response to Platelet—Derived Growth Factor in Vitro and Neointimal Proliferation in Vivo," *J. Pharmacol. Exp. Thera.*, 1989, 248, 1167-1174.
Okada, T. et al., "Localized Release of Perivascular Heparin Inhibits Intimal Proliferation after Endothelial Injury without Systemic Anticoagulation," *Neurosurgery*, 1989, 25, 892-898.
Poon, M. et al., "Rapamycin Inhibits Vascular Smooth Muscle Cell Migration," *J. Clin Invest.*, Nov. 1996, 98(10), 2277-2283.
Popma, J. J. et al., "Clinical trials of restenosis after coronary angioplasty," *Circulation*, Sep. 1991, 84(3), 1426-1436.
Powell, J. S. et al., "Inhibitors of Angiotensin-Converting Enzyme Prevent Myointimal Proliferation After Vascular Injury," *Science*, 1989, 245, 186-188.
Roesing, B. J. et al., Coronary restenosis elimination with a sirolimus eluting stent, *European Heart Journal*, 2001, 22, 2125-2130.
Rodeck, C. et al., "Methods for the Transcervical Collection of Fetal Cells During the First Trimester of Pregnancy," *Prenatal Diagnosis*, 1995, 15, 933-942.
Ruef, J. MD. et al., "Flavopiridol Inhibits Muscle Cell Proliferation In Vitro and Neointimal Formation In Vitro After Carotid Injury in the Rat," From the Division of Cardiology and Sealy Center for Molecular Cardiology, University of Texas Medical Branch, Galveston; Accepted Apr. 9, 1999; *Circulation* Aug. 10, 1999, pp. 659-665.
Serruys, P. W. et al., "A comparison of balloon-expandable-stent implantation with balloon angioplasty in patients with coronary artery disease," *N Engl J Med*, Aug. 25, 1994; 331(8), 489-495.
Serruys, P. W. et al., "Evaluation of ketanserin in the prevention of restenosis after percutaneous transluminal coronary angioplasty. A multicenter randomized double-blind placebo-controlled trial," *Circulation*, Oct. 1993; 88(4 Pt 1), 1588-1601.
Serruys, P. W. et al., "Heparin-coated Palmaz-Schatz stents in human coronary arteries. Early outcome of the Benestent-II Pilot Study," *Circulation*, Feb. 1, 1996; 93(3), 412-422.
Siekierka, J. J., "Probing T-Cell Signal Transduction Pathways with the Immunosupressive Drugs, FK-506 and Rapamycin," *Immunologic Research*, 1994, 13, 110-116.
Sigwart, et al., "Intravascular Stents to Prevent Occlusion and Restenosis After Transluminal Angioplasty," *N. Engl. J. Med.*, Mar. 19, 1987, 316, 701-706.
Simons, M. et al., "Antisense c-*myb* oligonucleotides inhibit intimal arterial smooth muscel cell accumulation in vivo," *Nature*, 1992, 359, 67-70.
Snow, A. D. et al., "Heparin modulates the composition of the extracellular matrix domain surrounding arterial smooth muscle cells," *Am. J. Pathol.*, 1990, 137, 313-330.
Sollott, S. J. et al., "Taxol Inhibits Neointimal Smooth Muscle Cell Accumulation after Angioplasty in the Rat," *J. Clin. Invest.*, 1995, 95, 1869-1876.
van Der Giessen, et al., "Self-expandable Mesh Stents: an Experimental Study Comparing Polymer Coated and Uncoated Wallstent Stents in the Coronary Circulation of Pigs," *Circulation* 1990, 82(suppl. III):III-542
van Der Giessen, W. J. et al., "Coronary stenting with polymer-coated and uncoated self-expanding endoprostheses in pigs," Coron. Art. Disease 1992; 3, 631-640.
Vasey, C. G. et al., "Clinical Cardiology: Stress Echo and Coronary Flow", , *Circulation*, Oct. 1989, 80(4) Supplement II, II-66.
Verweire, E. et al., "Evaluation of Fluorinated Polymers As Coronary Stent Coating," *Journal of Materials Science: Materials in Medicine*, Apr. 2000.
Weinberger, J. et al., "Intracoronary irradiation: dose response for the prevention of restenosis in swine," *Int. J. Rad. Onc. Biol. Phys.*, 1996, 36, 767-775.
Preliminary Amendment in U.S. Appl. No. 07/258,189, May 22, 1989.
Trial Transcript from Nov. 6, 2000 at 185-90 and 235-36 (Attorneys'opening remarks regarding '984 patent).
Trial Transcript from Nov. 7, 2000 at 274-301, 307-315, 320-28 and 332 (Cordis expert testimony regarding the Palmaz-Schatz stent); 370-379, 480-496 (J. Palmaz testimony regarding the Palmaz-Schatz stent, the '984 patent and the connected z-stent art).
Trial Transcript from Nov. 8, 2000 at 547-63, 657-63, 674-722, 782-85 (Cordis expert testimony regarding the Palmaz-Schatz stent, the '984 patent and the connected z-stent art).
Trial Transcript from Nov. 9, 2000 at 819-23, 921 (Cordis expert testimony regarding the '984 patent); 926-941 . (R. Croce testimony re Palmaz-Schatz stent); 1033-1053, (R. Schatz testimony).
Trial Transcript from Nov. 13, 2000 at 1089-1 134. (R. Schatz testimony); 1275-1305 (Cordis expert testimony regarding the '984 patent).
Trial Transcript from Nov. 14, 2000 at 1390-1404, 1448-1454, 1486-1500 (Cordis expert testimony regarding the '984 patent).
Trial Transcript from Nov. 15, 2000 at 1686-87, 1724-42, 1828-34, 1850-54, 1887-92 (AVE expert testimony regarding the '984 patent).
Trial Transcript from Nov. 16, 2000 at 2077-198 (AVE expert testimony regarding the alleged obviousness of the '984 patent).
Trial Transcript from Nov. 17, 2000 at 2331-34 (jury instructions as to the meaning of the limitations of the claims of the '984 patent).
Trial Transcript from Nov. 20, 2000 at 2441-48, 2499-2500, 2546-50, 2552-56 (Attorneys' closing arguments regarding the '984 patent).
Trial Transcript from Nov. 21, 2000 at 2592-94 (reading of jury verdict).
Trial Transcript from Dec. 18, 2000 at 2750-95 (Cordis expert testimony regarding the Palmaz-Schatz stent during the damages phase).
Trial Transcript from Dec. 20, 2000 at 3421-88 (AVE expert testimony regarding the Palmaz-Schatz stent during the damages phase).
Jury verdict, dated Nov. 21, 2000.
District Court decisions on post-trial motions (194 F. Supp. 2d 323).
Court of Appeal for the Federal Circuit decision (339 F.3d 1352).

Trial Transcript from Mar. 4, 2005 at 133-135, 171-173 and 192-96 (Attorney's opening remarks regarding '984 validity).
Trial Transcript from Mar. 7, 2005 at 275-311 (Cordis expert testimony regarding the Palmaz-Schatz stent); 342-46, 353-59, 416-425 (J. Palmaz testimony regarding the Palmaz-Schatz stent, the '984 patent and the connected z-stent art); 430-449, 452-58, 462-492 (R. Croce testimony regarding the Palmaz-Schatz stent); 500-507 (Cordis expert testimony regarding the '984 patent).
Trial Transcript from Mar. 8, 2005 at 609 (Cordis expert testimony regarding the '984 patent); 628-73, 724-740, 773, 801-839 (Cordis expert testimony regarding the '984 patent, the prior art and the Palmaz-Schatz stent).
Trial Transcript from Mar. 9, 2005 at 936-49, 968-69 (Cordis expert testimony regarding the '984 patent, the prior art and the Palmaz-Schatz stent).
Trial Transcript from Mar. 10, 2005 at 1427-74, 178-1509, 1514-23 (AVE expert testimony regarding the alleged obviousness of the '984 patent); 1566-93 (AVE expert testimony regarding Palmaz-Schatz stent); 1634-49 (R. Schatz testimony).
Trial Transcript from Mar. 11, 2005 at 1846-47, 1891-1900, 1919 (Attorneys' closing arguments regarding '984 obviousness).
Trial Transcript fmm Mar. 14, 2005 at 1964-67 (reading of jury verdict).
Jury verdict dated Mar. 14, 2005.
Medtronic Vascular Inc.'s Opening Brief in Support of its Motion for Judgment As a Infringement Claim dated Apr. 19, 2005.
Medtronic Vascular Inc.'s Opening Brief in Support of its Motion for a New Trial dated Apr. 19, 2005.
D.I. 1407, Cordis' Combined Answering Brief In Opposition to AVE's Motion for JMOL on Infringement of the Palmaz '762 and Schatz '984 Patents and Its Motion for a New Trial dated May 5, 2005.
D.I. 1414, Medtronic Vascular Inc.'s Combined Reply Brief In Support of Its Motion for Judgment as a Matter of Law on Cordis Corp.'s Patent Infringement Claims and Its Motion for a New Trial dated May 19, 2005.
Trial Transcript from Feb. 8, 2001 at 372-412, 449-469 (B. Tobor testimony regarding the prosecution of the '417, '984 and '332 patents); 510-13 (J. Milnamow testimony regarding the prosecution of the '332 patent); 558-604 (J. Palmaz testimony regarding the prosecution of the '417, '984 and '332 patents and the prior art).
Trial Transcript from Feb. 9, 2001 at 637-45, 662-672, 682-85 (J. Palmaz testimony regarding the prior art); 699-742 (R. Schatz testimony); 769-770, 790-95 (Cordis expert testimony regarding prior art).
D.I. 1067, Medtronic AVE, Inc.'s Post-Trial Brief Relating to the Unenforceability of the '762 and '984 Patents Due to Inequitable Conduct.
D.I. 1077, Cordis' Combined Answering Brief in Opposition to AVE's BSC's Post-Hearing Briefs on Alleged Inequitable Conduct Concerning the '762, '984 and '332 Patents.
D.I. 1089, Reply Brief In Support of Medtronic AVE, Inc.'s Contention that the '762 and '984 Patents are Unenforceable Due to Inequitable Conduct dated May 7, 2001.
C.A. No. 00-886-SLR, Answer and Counterclaims of Def. Medtronic AVE, Inc. To First Amended Complaint of Plaintiff Cordis Corp.
BSC's Opening Post-Trial Brief in Support of Its Defense That the Patents in Suit Are Unenforceable, dated Mar. 16, 2001.
Reply Brief in Support of BSC's Defense That the Patents in Suit Are Unenforceable, dated May 7, 2001.
Court's Decision on allegations of inequitable conduct (194 F. Supp. 2d 323) Mar. 28, 2002.
Trial Transcript from Nov. 21, 2000 at 155-57 and 180-84 (Attorneys' opening remarks regarding '332 patent).
Trial Transcript from Nov. 27, 2000 at 227-51, 260-300 (Cordis expert testimony regarding the Palmaz-Schatz stent); 343-60, 363-67, 424-33 (J. Palmaz testimony regarding the Palmaz-Schatz stent and the '332 patent).
Trial Transcript from Nov. 28, 2000 at 649-71.
Trial Transcript from Nov. 29, 2000 at 791-816, 859-870, 953-62 (Cordis expert testimony regarding the '332 patent and the Palmaz-Schatz stent).
Trial Transcript from Nov. 30, 2000 at 1018 (Cordis expert testimony regarding the '332 patent); 1062-80, 1108-111 (R. Croce testimony regarding the Palmaz-Schatz stent); 1169-70, 1205-17, 1236-45 (Cordis expert testimony regarding the '332 patent).
Trial Transcript from Dec. 1, 2000 at 1352-54 (Cordis expert testimony regarding the '332 patent); 1364-1442 (R. Schatz testimony); 1493-1508, 1552-69 (BSC expert testimony regarding the '332 patent and the Palmaz-Schatz stent).
Trial Transcript from Dec. 4, 2000 at 1602-12, 1638-51, 1713-14, 1730-61, 1811-14, 1823-36 (BSC expert testimony regarding the alleged obviousness of the '332 patent, the prior art and the Palmaz-Schatz stent).
Trial Transcript from Dec. 6, 2000 at 2318-27, 2342-58 (BSC expert testimony regarding the '332 patent).
Trial Transcript from Dec. 7, 2000 at 2549-52 (Cordis expert testimony regarding the '332 patent); 2575-2579, 2591-92, 2630-31, 2649, 2669-71, 2684-85, 2688, 2708-10, 2725-27 (Attorney closing argument regarding '332 patent); 2742-46 Q'ury instructions as to the meaning of the limitations of the claims of the '332 patent).
Trial Transcript from Dec. 11, 2000 at 2817-22 (reading of jury verdict).
Jury verdict, dated Dec. 11, 2000.
D.I. 699, Motion by Defendant BSC and Scimed Life Systems, Inc. For Summary Judgment of Invalidity of U.S. Patent No. 5,902,332 dated Apr. 4, 2000.
D.I.896, Order Denying Motion for Summary Judgment of Invalidity and Unenforceability of Claims 1, 3, and 5 of the U.S. Patent No. 5,902,332 Denying {699-1} Motion for Summary Judgment of Invalidity of U.S. Patent No. 5,902,332 dated Oct. 12, 2000.
Wright et al., Percutaneous Endovascular Stent: An Experimental Study (Abstract), RSNA Meeting (Nov. 28, 1984).
Hearing Transcript from Feb. 10, 1998 at 122-32, 146-80 (Attorneys' opening remarks regarding '417 patent); 180-312 (R. Schatz testimony) [Portions of This Transcript Have Been Removed as Confidential].
Hearing Transcript from Feb. 11, 1998 at 427-575, 577-651 (Cordis expert testimony regarding the '417 patent, the prior art and the Palmaz-Schatz stent).
Hearing Transcript from Feb. 13, 1998 at 1121-1261 (Guidant expert testimony regarding the alleged obviousness of the '417 patent, the prior art and the Palmaz-Schatz stent). [Portions of This Transcript Have Been Removed as Confidential].
Order by J. Robinson denying Cordis' Motion for a Preliminary Injunction Against ACS dated Jul. 17, 1998.
ACS, Inc. 's and Guidant Corp.'s Opening Brief in Support of Their Motion for Summary Judgment on Invalidity of U.S. Patent No. 5,102,417 dated Aug. 27, 1998.
Plaintiffs ' Answering Brief in Opposition to ACS' and BSC's Motion for Summary Judgment on Obviousness dated Sep. 24, 1998.
Order dated Mar. 31, 2000.
Schatz Deposition Testimony; May 15, 1996: 79-83, 89-92, 105-107 and 153-161.
Schatz Deposition Testimony; May 16, 1996: 555-564, 569-572.
Schatz Deposition Testimony; Jan. 8, 1998: 67-73, 108-110.
Schatz Deposition Testimony; July 14, 1998: 69-77, 108-112, 119-123.
Schatz Deposition Testimony; Jul. 12, 1999: 88-91, 132-135, 144-149, 218-223, 231-242.
Schatz Deposition Testimony; Jul. 13, 1999: 251-334, 339-345, 374-416.
Schatz Deposition Testimony; Jul. 14, 1999: 454-550.
Schatz Deposition Testimony; Jul. 15, 1999: 560-614.
Schatz Deposition Testimony; Dec. 2, 1999: 906-91 1, 928-942, 945-963, 976-978, 1029-1034, 1038-1042.
Palmaz Deposition Testimony, Nov. 5, 1991: 160-172.
Palmaz Deposition Testimony, Feb. 5, 1995: 710-727.
Palmaz Deposition Testimony, Jul. 16, 1998: 55-56; 81-82.
Palmaz Deposition Testimony, Jul. 28, 1999: 560-568, 570-579.
Palmaz Deposition Testimony, Jul. 29, 1999: 778-785.
Palmaz Deposition Testimony, Aug. 31, 1999: 1403-1452.
Palmaz Deposition Testimony, Sep. 2, 1999: 1953-1960.

Palmaz Deposition Testimony, Oct. 14, 1999; 2201-2209; 2275-2342; 2371-2411.
Palmaz Deposition Testimony, Oct. 15, 1999: 2424-2497; 2508-2589.
Palmaz Deposition Testimony, Oct. 16, 1999; 2853-2860.
Tobor Deposition Testimony, Jun. 17, 1999: 837-958.
Tobor Deposition Testimony, Jun. 18, 1999: 1095-1184.
Tobor Deposition Testimony, Dec. 1, 1999: 1217-1371.
Tobor Deposition Testimony, Dec. 2, 1999: 1398-1414; 1444-1508; 1532-1548.
Tobor Deposition Testimony, Dec. 3, 1999: 1652-1653; 1662-1672; 1683-1694.
Kula Deposition Testimony, Apr. 20, 1999: 268-169.
Kula Deposition Testimony, Nov. 16, 1999: 660-675; 680-694; 7-8-755; 774-821.
Kula Deposition Testimony, Nov. 18, 1999; 176-223.
Expert Report of Dr. Rodney S. Badger on Behalf of Medtronic AVE, Inc. (Jan. 31, 2000).
Expert Report of Dr. Joseph Bonn on Behalf of Medtronic AVE, Inc. (Jan. 31, 2000).
Deposition of Dr. Joseph Bonn dated Mar. 14, 2000.
Rebuttal Expert Report of Nigel Buller, B.Sc., M.B., F.R.C.P. (Mar. 2000).
Second Supplement Rebuttal Expert Report of Nigel Buller, B.Sc., M.B., F.R.C.P. (Aug. 17, 2004).
Rebuttal Expert Report of John M. Collins, PH.D. (Feb. 2000).
Expert Report of David C. Cumberland, M.D. (Jan. 24, 2000).
Expert Report of John T. Goolkasian (Feb. 2000).
Deposition of Richard R. Heuser, M.D. (Sep. 7, 2004).
Deposition of Henry R. Piehler (Sep. 10, 2004).
Deposition of Ronald J. Solar (Mar. 22, 2000).
Deposition of Ronald J. Solar (Mar. 23, 2000).
Deposition of Ronald J. Solar (Apr. 12, 2000).
Expert Report of Dr. Arina Van Breda on Behalf of Medtronic AVE, Inc. (Jan. 31, 2000).
Deposition of Anna Van Breda (Mar. 24, 2000).
Deposition of Arina Van Breda (Aug. 21, 2004).
Expert Report of John F. Witherspoon (Jan. 24, 2000).
Supplemental Expert Report of John F. Witherspoon (Oct. 27, 2000).
Deposition of John F. Witherspoon (Mar. 8, 2000).
Palmaz et al., Article: "Normal and Stenotic Renal Arteries: Experimental Balloon Expandable Intraluminal Stenting", Radiology, Sep. 1987. (AVE 84).
Julio C. Palmaz, Article: "Expandable vascular endoprosthesis." (AVE 132).
Duprat et. al., Article: Flexible Balloon-Expandable Stent for Small Vessels Duprat et. al. Radiology, vol. 162, pp. 276-278, 1987. (AVE 134).
Coons et. al., Article: "Large-Bore, Long Biliary Endoprosthesis (Biliary Stents) for Improved Drainage." Radiology, vol. 148, pp. 89-94, 1983. (AVE 143).
Honickman et al., Article: "Malpositioned Biliary Endoprostesis, Technical Developments And Instrumentation." vol. 144, No. 2., 1982. (AVE 144).
Harries-Jones, et al., Article: "Repositioning of Biliary Endoprosthesis with Grantzig Balloon Catheters," AJR, vol. 138, pp. 771-772, 1982. (AVE 153).
Charnsangavej et al., Article "Stenosis of the Vena Cava: Preliminary Assessment of Treatment with Expandable Metallic Stents," Radiology, vol. 161, pp. 295-298, 1986. (AVE 359).
Wallace, M. J. et al., Article "Tracheobronchial Tree: Expandable Metallic Stents Used in Experimental and Clinical Applications," Radiology, vol. 158, pp. 309-312, 1986. (AVE 364).
T. Yoshioka, et al., AIR Article: "Self-Expanding Endovascular Graft: An Experimental Study in Dogs", vol. 151, pp. 673-676, 1988. (AVE 438).
Palmaz, J. C. et al., Article: "Expandable Intraluminal Vascular Graft: A Feasibility Study," Surgery, vol. 99, pp. 199-205, 1986. (AVE 461).
Lawrence et al., Article: "Percutaneous Endovesecular Graft: Experimental Evaluation." Radiology, vol. 163, pp. 357-360, 1987. (AVE 671).
Palmaz et al., Article: Expandable Intraluminal Graft: A Preliminary Study, Nov. 17-22, 1985, Radiology, vol. 156, pp. 73-77, 1985. (AVE 1224).
Fallone et al., "Elastic Characteristics of the Self-Expanding Metallic Stents," Investigative Radiology, vol. 23, pp. 370-376, 1988. (AVE 1953).
Palmaz Paper Entitled "Research Project Expandable Vascular Endoprosthesis" May 18, 1983.
Rousseau, et al., Publication: "Percutaneous Vascular Stent: Experimental Studies & Preliminary Clinical Results in Peripheral Arterial Diseases," in Inter. Angio, vol. 6, 153-161, 1987. (AVE 3301).
Rousseau , et al., Publication: "Self-Expanding Endovascular Prostesis; An Experimental Study," Radiology, vol. 164, pp. 709-714, 1987. (AVE 3303).
Wallace, et al., Article: "Tracheobronchial Tree: Expandable Metallic Stents Used in Experimental and Clinical Applications," Radiology, vol. 58, pp. 309-312, 1986. (DBX 2938).
Palmaz et al., Article: "Expandable Intraluminal Graft: A Preliminary Study," Radiology, vol. 156, pp. 73-77, Nov. 17-22, 1985 (DBX 4595).
Program for the 12th Annual Course on Diagnostic Angiography and Interventional Radiology Mar. 23-26, 1987 sponsored by the Society of Cardiovascular and Interventional Radiology (DBX 6235).
Preliminary Motion for Judgment re: Wolff claims 1, 2-8, 10, 15 and 19 (DBX6759).
Palmaz Declaration (DBX 7069).
Letter from Gaterud to Dr. R. Palmaz dated Jul. 5, 1988 with attached document entitled: "Segmented, balloon-expandable stents." (DBX 7160).
Duprat et al., Article: "Flexible Balloon-Expandable Stent For Small Vessels," Radiology, vol. 168, pp. 276-278, 1987 (PX 82).
Drawing Sent to Bodic on Mar. 17, 1986 (PX 374).
Letter from Dr. Palmaz to R. Bowman enclosing a model of the flexible coronary graft dated Mar. 17, 1986 (PX 337).
Lab Notebook pages dated Jul. 30, 1987 from Rodney Wolff (Cor 185596-597) (PX621A).
Charnsangavej, et al., Article: "Stenosis of The Vena Cava Preliminary Assessment of Treatment with expandable Metallic Stents," Radiology, vol. 161, No. 2, pp. 295-298 with attached photographs, 1986. (API 72).
J. Palmaz: The Current Status of Vascular Prostheses, published by SCIR in the TwelRh Annual Course on Diagnostic Angiography And Interventional Radiology Mar. 23-26, 1987. (API 73).
Amendment in Response to Office Action of Oct. 18, 1998 in re: Application of Julio Palmaz S/N 174,246, (API 152).
Article: Wallace, et al., Tracheobronchial Tree: Expandable Metallic Stents Used in Experimental and Clinical Applications Work In Progress, Radiology, vol. 158, pp. 309-312. (API 295).
Reply of Senior Party Schatz To Patentee Wolff's Opposition To The Belated Motion For Judgment Of Applicant Schatz With Regard To Wolff Claims 1, 2-8, 10, 1 1, 13-17, And 19 (COR 186450-455) (API 310).
Brief Of Senior Party Schatz At Final Hearing (API 313).
Letter from Ron Sickles to Ben Tobor dated Feb. 10, 1988 (Exhibit 42).
Letter from R.O. Sickles to Mike Tatlow dated May 12, 1988 (Exhibit 43).
Letter from R. O. Sickles to Richard Schatz dated Jun. 2, 1988 (Exhibit 44).
Letter from Richard Schatz to Raimund Erbel dated Jun. 3, 1988 (Exhibit 45).
Letter from Richard Schatz to Mike Schuler dated Aug. 29, 1991 (Exhibit 48).
Minutes of J&J Stent Project Review Meeting dated Jan. 21, 1988 (Exhibit 7).
Preliminary Motion for Judgment with Regard to Wolff Claims 1, 2-8, 10, 11, 13-17, and 19. (Exhibit 67).
Declaration of Richard A Schatz. (Exhibit 75).
Belated Motion for Judgement with Regard to Wolff Claims 1, 2-8, 10, 1 1, 13-17 and 19. (Schatz—Exhibit 77).
Letter from Dr. Schatz to Mr. Tobor, dated Jun. 3, 1988. (Exhibit 122).

Letter from Dr. Schatz to Mr. Romano, dated Nov. 28, 1988. (Exhibit 131).
Letter from Mr. Sickles to Mr. Tobor, dated Feb. 10, 1988 (Exhibit 145).
Richard A. Schatz, Article titled: "A View of Vascular Stents" Circulation, vol. 79, No. 2, pp. 445-457, 1989. (Exhibit 194).
Senior Party Schatz's reply to Patentee Wolffs Opposition to the Preliminary Motion Of Applicant Schatz for judgment with regard to Wolff Claims 1, 2-8, 10, 11, and 13-17. (Exhibit 69).
Wallace, et al., Article: "Tracheobronchial Tree: Expandable Metallic Stents Used in Experimental and Clinical Applications' Work In Progress," Radiology, vol. 158, pp. 309-312, 1986. (Exhibit 165).
Charnsangavej, et al., Article: "Stenosis of The Vena Cava Preliminary Assessment of Treatment with expandable Metallic Stents." Radioloby, vol. 161, No. 2, pp. 295-298 with attached photographs, 1986! (Exhibit 167).
David D. Lawrence et al., Publication: Percutaneous Endovascular Graft: Experimental Evaluation[1], Radiology pp. 163, 357-360, 1987. (Exhibit 173).
Charles E. Putnam, M.D., Cover and article from "Investigative Radiology", vol. 23, No. 5, May 1988. (Exhibit 177).
Robert N. Berk, Cover and article from "American Journal of Roentology", pp. 673-676, 1988. (Exhibit 178).
Declaration of John S. Kula Under 37 CFR § 1 .672. (Kula—Exhibit 77).
Yoshioka et al., Article: "Self-Expanding Endovascular Graft: An Experimental Study in Dogs" AJR, vol. 151, pp. 673-676, 1988. (PX 100).
Palmaz, et al., Article: Expandable Intraluminal Graft: A Preliminary Study Work in Progress[1], Radiology, vol. 156, No. 1, pp. 73-77, 1985. (PX 101).
Declaration of Richard Schatz Under 37 C.F.R. § 1.672. (PX 106).
Charnsangavej et al., Article: "Stenosis of the Vena Cave: Preliminary Assessment of Treatment with Expandable Metallic Stents," Radiology, vol. 161, pp. 295-298, 1986. (PX 143).
Wallace, et al., Article: Tracheobronchial Tree: Expandable Metallic Stents Used in Experimental and Clinical Applications Work in Progress[1], Radiology, vol. 158, pp. 309-312, 1986. (PX 144).
Gina Kolata, News Article: NY Times, "Devices That Opens Clogged Arteries Gets a Failing Grade in a New Study", pp. 16-18, Jan. 3, 1991. (PX 186).
Duprat, et al., Article: "Flexible Balloon—Expanded Stent for Small Vessels Work in Progress[1]", Radiology, vol. 62, pp. 276-278, 1987. (PX 207).
Letter from Palmaz to Bowman dated Mar. 17, 1986. (PX 350).
Memo re: Minutes of Stent Project Review -San Antonia - Mar. 15, 1988. (PX 651).
Kuntz, et al., Article: Clinical Cardiology Frontiers: "Defining Coronary Restenosis, Newer Clinical and Angiographic Paradigms", Circulation, Sep. 1993, vol. 88, No. 3, pp. 1310-1323. (PX 854).
Belated Motion for Judgment with regard to Wolff Claims 1, 2-8, 10, 11, 13-17, and 19. (PX 1410).
Drawing of Spiral Stent (sent to Bodic Mar. 17, 1986). (PX2933).
Wright et al., Article: "Percutaneous Endovascular Stents: An Experimental Evaluation," Radiology, vol. 156, pp. 69-72, 1985. (PX 3093).
Charnsangavej et al., Article: "A New Expandable Metallic Stent for Dilation of Stenotic Tubular Structures: Experimental and Clinical Evaluation," Houston Medical Journal, vol. 3, pp. 41-51, Jun. 1987. (PX 3207).
In re Application of Wiktor, Appln. No. 69,636, Response to Office Action dated Mar. 17, 1988. (PX3236).
Transmittal Letter of Response to First Office Action in '417 patent. (PX 3993).
Letter from B. Tobor to R. Schatz dated Jul. 23, 1991. (PX 3996).
Mullins et al., Article: "Implantation of balloon—expandable intravascular grafts by catherization in pulmonary arteries and systemic veins," Circulation, vol. 77, No. 1, pp. 188-189, 1988. (PX4049).
Schatz et al., Article: "Intravascular Stents for Angioplasty," Cardio, 1997. (PX 4050).
Schatz et al., Article: "New Technology in Angioplasty Balloon—Expandable Intravascular Stents, New Developments in Medicine," vol. 2, No. 2 pp. 59-75, 1987. (PX4051).
Richard A. Schatz, Article: "Introduction to Intravascular Stents," Cardiology Clinics, vol. 6, No. 3, pp. 357-372, 1988. (PX 4052).
Richard A. Schatz, Article: "A View of Vascular Stents," Circulation, vol. 79, No. 2, pp. 445-457, 1989. (PX4053).
Wang et al., Article: "An Update on Coronary Stents," Cardio, pp. 177-186, 1992. (PX 4054).
Richard A. Schatz, Article: "New Technology in Angioplasty: Balloon-Expandable Starts," Medicamundi, vol. 33, No. 3, pp. 1 12-1 16, 1988. (PX 4055).
Letter from Tobor to Schatz dated Sep. 29, 1988. (PX1395).
Verified Statement of Facts by Unnamed Inventor R.A. Schatz document filed in U.S. Patent and Trademark Office on Sep. 8, 1989. (PX 3677).
Declaration of John S. Kula Under 37 CFR § 1.672 (Exhibit 329).
Letter to Mike Schular from R.A. Schatz dated Aug. 29, 1991. (Exhibit 402).
Articulated, Balloon—Expandable Stents, (DBX 7159).
J. Rosch et al., Experimental Intrahepatic Portacaval Anastomosis: Use of Expandable Gianturco Stents, Radiology, vol. 162, pp. 481-485, 1987.
J. Rosch et al., Modified Gianturco Expandable Wire Stents In Experimental and Clinical Use, Ann Radiol, vol. 31, No. 2, pp. 100-103, 1987.
J. Rosch et al., Gianturco Expandable Stents In the Treatment of Superior Vena Cava Syndrome Recurring After Vena Cava Syndrome Recurring After Maximum-Tolerance Radiation, Cancer, vol. 60, pp. 1243-1246, 1987.
J.E. Gordon, Structures or Why Things Don't Fall Down, Penguin Books, pp. 45-59, 132-148, 210-244,377-383.
Maass et al., Radiological Follow-up of Transluminally Inserted Vascular Endoprostheses: An Experimental Study Using Expanding Spirals, Radiology, vol. 152, pp. 659-663, 1984.
Argument submitted re EP 861 15473 dated Jan. 20, 1995. (AVE 2478).
Verified Statement of Facts by Julio C. Palmaz dated Aug. 4, 1989. (PX 3662).
Papanicolaou et al., Insertion of a Biliary Endoprosthesis Using A Balloon Dilatation Catheter, Gastrointest Radiology, vol. 10, pp. 394-396, 1985.
Palmaz et al., Atherosclerotic Rabbit Aortas; Expandable Intraluminal Grafting, Radiology, vol. 168, pp. 723-726, 1986.
Palmaz, The Current Status of Vascular Prostheses; Rosch et al., Gianturco, Expandable Stents in Experimental and Clinical Use, SCIVR, pp. 1 18-124, 1987.
Rosch et al., Abstract: Modified Gianturco Expandable Wire Stents in Experimental and Clinical Use, CIRSE, Porto Cervo, Sardinia, May 25-29, 1987.
Rosch et al., Gianturco Expandable Wire Stents in the Treatment of Superior Vena Cava Syndrome Recurring After Maximum-Tolerance Radiation, Cancer, vol. 60, pp. 1243-1246, 1987.
Mirich et al., Percutaneously Placed Endovascular Grafts for Aortic Aneurysms: Feasibility Study, Radiology, vol. 170, pp. 1033-1037, 1989.
Dotter, Transluminally-placed Coilspring Endarterial Tube Grafts, Investigative Radiology, vol. 4, Sep.-Oct., pp. 329-332, 1969.
Palmaz et al., Abstract: Expandable Intraluminal Graft: A Preliminary Study, Radiology, vol. 153 (P), Nov. 1983: 70th Scientific Assembly and Annual Meeting.
Cragg et al, Nonsurgical Placement of Arterial Endoprostheses: A New Technique Using Nitinol Wire, Radiology, vol. 147, pp. 261-263, Apr. 1983.
J. Rosch et al., Gianturco Expandable Stents in Experimental and Clinical Use, Program: "Twelfth Annual Course on Diagnostic Angiography and Interventional Radiology" (Society of Cardiovascular and Interventional Radiology, Pittsburgh, PA), Mar. 23-26, 1987 (the second Monofilament Article).
Uchida et al., Modifications of Gianturco Expandable Wire Stents, AJR, vol. 150, pp. 1185-1187, 1988.
Palmaz, Balloon-Expandable Intravascular Stent, AJR, vol. 1510, pp. 1263-1269.

Cordis Corporation v. *Advanced Cardiovascular Systems, Inc., Guidant Corporation, Arterial Vascular Engineering, Inc., Boston Scientific Corporation and SCIMED Life Systems, Inc.*, Plaintiffs Complaint, Oct. 23, 1997 (Case No. 97-550-SLR).
Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable-Grafts Partnership*, Plaintiffs First Amended Complaint for Declaratory Relief of Patent Validity, Unenforceability, Noninfringement, and for Antitrust Violations, Jan. 27, 1998 (Civil Action No. 97-700).
Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable-Grafts Partnership*, Cordis Corporation and Johnson & Johnson's Answer and Counterclaim, Feb. 27, 1998 (Civil Action No. 97-700-SLR).
Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable-Grafts Partnership*, Expandable-Graft Partnership's Answer, Feb. 27, 1998 (Civil Action No. 97-700-SLR).
Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable-Grafts Partnership*, Reply of Plaintiff Arterial Vascular Engineering, Inc. To Counterclaims of Defendant Cordis Corporation, Mar. 31, 1998 (Civil Action No. 97-700-SLR).
Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable-Grafts Partnership*, Reply of Plaintiff Arterial Vascular Engineering, Inc. To Counterclaims of Defendant Expandable Grafts Partnership, Mar. 31, 1998 (Civil Action No. 97-700-SLR).
Cordis Corporation v. *Advanced Cardiovascular Systems, Inc. and Guidant Corporation*, Cordis Corporation's Motion for a Preliminary Injunction, Oct. 8, 1997 (Civil Action No. 97-550).
Cordis Corporation v. *Advanced Cardiovascular Systems, Inc., Guidant Corporation Arterial Vascular Engineering, Inc., Boston Scientific Corporation and SCIMED, Inc.*, Cordis 's Motion for Preliminary Injuction Against Arterial Vascular Engineering, Inc., Dec. 29, 1997 (Case No. 97-550-SLR).
Deposition of R. Schatz, M.D. in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Jan. 8, 1998 (Civil Action No. 97-550 SLR).
Deposition of Lee P. Bendel in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Jan. 22, 1998 (Civil Action No. 97-550 SLR).
Deposition of Julio Cesar Palmaz in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Dec. 29, 1997 (Civil Action No. 97-550 SLR).
Deposition of Richard A. Bowman in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Jan. 9, 1998 (Civil Action No. 97-550 SLR).
Deposition of Gary Schneiderman in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Jan. 16, 1998 (Civil Action No. 97-550 SLR).
Deposition of David Pearle, M.D. in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.*, taken on Jul. 10, 1998 (Civil Action No. 97-550 SLR).
Preliminary Injuction hearing testimony taken on Feb. 9-13, 1998 (Civil Action No. 97-550 SLR).
Cordis Corporation v. *Advanced Cardiovascular Systems, Inc., et al.*, (Civil Action No. 97-550 SLR) and *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc. Et al.* (Civil Action No. 98-65-SLR), Opening Post Hearing Brief of Plaintiff Cordis Corporation in Support of Motion for Preliminary Injuction, Mar. 6, 1998 (Portions relevant to patent claim construction and parent validity issues).
Cordis Corporation and Expandable Grafts Partnership v. *Advanced Cardiovascular Systems, Inc. et al.*, Post-Hearing Reply Brief of Plaintiff Cordis Corporation in Support of Its Motion for Preliminary Injuction, Apr. 10, 1998 (Case No. 97-550 SLR) (Portions relevant to patent validity issues).
Cordis Corporation and Expandable Grafts Partnership v. *Advanced Cardiovascular Systems, Inc. et al.*, Plaintiffs Motion for a Preliminary Injuction Against Boston Scientific Corporation and SCLMED Life Systems, Inc. And Memorandum in Support, Apr. 13, 1998 (Case No. 97-550-SLR).
Cordis Corporation and Expandable Grafts Partnership v. *Advanced Cardiovascular Systems, Inc., et al.*, Judge Robinson's Order Denying Plaintiffs Motion for a Preliminary Injunction, Jul. 17, 1998 (Civil Action No. 97-550 SLR).
Cordis Corporation and Expandable Grafts Partnership v. *Advanced Cardiovascular Systems, Inc., et al.*, Defendant Boston Scientific Corporation and SCIMED Life Systems, Inc.'s Motion for Summary Judgment of Invalidity of U.S. Patent No. 5,102,417, Aug. 27, 1998 (Civil Action No. 97-550-SLR).
Boston Scientific Limited, et al. v. *Expandable Grafts Partnership*, Plaintiffs' Statement of Claim, Mar. 13, 1997 (UK Action No. 1493).
Boston Scientific Limited, et al. v. *Expandable Grafts Partnership*, Defendant's Amended Defense and Counterclaim, Aug. 14, 1997 (UK Action No. 1493).
Boston Scientific Limited, et al. v. *Expandable Grafts Partnership*, Petition for Revocation, Mar. 13, 1997 (UK Action No. 1497).
Boston Scientific Limited, et al. v. *Expandable Grafts Partnership*, Particulars of Objections, Mar. 13, 1997 (UK Action No. 1497).
Boston Scientific Limited, et al. v. *Expandable Grafts Partnership and Bostan Scientific Limited et al.*, v. *Julio C. Palmaz*, Boston's Skeleton Argument (UK Action Nos. 1493, 1495, 1496, and 1497).
Boston Scientific Limited, et al. v. *Julio C. Palmaz and Expandable Grafts Partnership*, Skeleton Argument of Palmaz/EGP, Mar. 19, 1998 (UK Action Nos. 1493, 1495, 1496 and 1497).
Boston Scientific Limited, et al. v. *Julio C. Palmaz and Expandable Grafts Partnership*, EGP's Final Submissions, Apr. 2, 1998 (UK Action Nos. 1493, 1495, 1496 and 1497).
Boston Scientific Limited, et al. v. *Julio C. Palmaz and Expandable Grafts Partnership*, Judgment, Jun. 26, 1998 (UK Action Nos. 1493, 1495, 1496 and 1497).
Rosch, Modified Gianturco Expandable Wire Stents in Experimental and Clinical Use, CJIR.SE 1987 Presentation: *see* Witness Statement of Josef Rosch from U.K. Proceeding.
Statement of Claim By Boston Scientific et al. against *Expandable Grafts Partnership et al.*, in *EPG et al.*, v. *Boston Scientific et al.* in Netherlands (Mar. 13, 1997).
Motion for Joinder of Actions, Change of Claim and Statement of Claim filed by Expandable Grafts Partnership et al. in *EPG et al.* v. *Boston Scientific et al.* In Netherlands (Apr. 22, 1997).
Opinion of K.J. Merman filed in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Aug. 29, 1997).
Expert repon of Dr. Nigel Buller in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Aug. 28, 1997).
Expert report of Lee P. Bendel in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Aug. 28, 1997).
Memorandum of Oral Pleading in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Sep. 12, 1997).
Plea Notes of P. A.M. in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Mar. 10, 1998).
Decision of Court of Appeals in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Apr. 23, 1998).
Translation of Nullity Action Against EPO 0 364 787 by Biotronik in Germany.
Translation of Nullity Action Against EPO 0 335 341 by Biotronik in Germany.
Translation of EPG Response to Nullity Action Against EP 0 364 787 by Biotronik in Germany.
Translation of EPG Response to Nullity Action EP 0 335 341 by Biotronik in Germany.
Nullity Suit Against EP-B1-0 335 341 Brought by Boston Scientific in Germany.
Translation of Opposition filed by Terumo Corp. Against Japan Patent No. 2680901.
Translation of Decision on Opposition Against Japan Patent No. 2680901.
Memorandum Order of the Court dated Sep. 7, 2000, concerning disputed claim constuction.
Translation of Judgment in Nullity Action Against EP 0 364 787 by Biotronik in Germany.
Translation of Judgment in Nullity Action Against EP 0 335 341 by Biotronik in Germany.
Trial transcript from Mar. 17, 2005 at 171-172, 191-192.
Trial transcript from Mar. 18, 2005 at 282-285, 325-327, 349-351.
Trial transcript from Mar. 21, 2005 at 721-726.

Trial transcript from Mar. 24, 2005 at 1387.

Trial transcript from Jul. 26, 2005.

BSC's Opening Brief in Support of Its Motion for Judgment as a Matter of Law or, in the Alternative, for a New Trial, dated Mar. 16, 2001.

Cordis' Answering Brief in Opposition to BSC's Motion for JMOL or a New Trial on the Palmaz '762 Patent and the Schatz '332 Patents, dated Apr. 17, 2001.

BSC's Reply Brief in Support of Its Motion for Judgment as a Matter of Law or, in the Alternative, for a New Trial, dated May 11, 2001.

J. Rosch et al., Abstract, Expandable Gianturco-Type Wire Stents in Experimental Intrahepatic Portacaval Shunts, Program: "72nd Scientific Assembly and Annual Meeting of the Radiological Society of North America", Nov. 30-Dec. 5, 1986, Radiology, vol. 161, pp. 40-41, 1986.

Cordis Corporation v. *Boston Scientific*, Order Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Judgment in a Civil Case Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Memorandum Opinion Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Memorandum Opinion Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Memorandum Opinion Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Order Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation v. *Boston Scientific*, Order Dated Mar. 27, 2006 (97-550-SLR).

Cordis Corporation and Expandable Grafts Partnership v. *Advanced Cardiovascular Systems, Inc., Guidant Corporation, Arterial Vascular Engineering, Inc., Boston Scientific Corporation and SCIMED Life Systems, Inc.*, Answer and Counterclaims of Defendant Advanced Cardiovascular Systems, Inc., Apr. 8, 1998 (Case No. 97-550-SLR).

Boston Scientific Limited et al. v. *Expandable Grafts Partnership and Boston Scientific Limited et al.* v. *Julio C. Palmaz*, Boston's Closing Submissions (UK Action Nos. 1493, 1495, 1496 and 1497).

Cordis Corporation v. *Advanced Cardiovascular Systems, Inc., Guidant Corporation, Arterial Vascular Engineering, Inc., Boston Scientific Corporation and SCIMED Life Systems, Inc.*, Defendants' Answer, Nov. 12, 1997 (Case No. 97-550-SLR).

Statement of Rejoinder in the Action on the Merits, Also Including an Amendment of Defendant's Final Position in the Principal Action, as Well as the Provisional Statement of Rejoinder in the Action on the Counterclaim in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Feb. 10, 1998).

Statement of Answer in the Ancillary Appeal in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Mar. 10, 1998).

Appeal filed by Expandable Grafts Partnership et al. in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Nov. 12, 1997).

Title filed by Boston Scientific et al. in *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Jan. 22, 1998).

Deposition of Richard Schatz, M.D. in *Cordis Corporation* v. *Advanced Cardiovascular Systems, Inc.* taken on Jul. 14, 1998 (Civil Action No. 97-550-SLR).

Jury Verdict form from the *Cordis Corporation et al* v. *Boston Scientific Corporation, et al* liability trial, undated.

Trial testimony transcripts from the *Cordis Corporation et al.* v. *Boston Scientific Corporation et al.* liability trial dated Nov. 21, Nov. 27-Dec. 1, Dec. 4-8 and Dec. 11, 2000.

Boston Scientific SCIMED, Inc. and Boston Scientific Corporation v. *Cordis Corporation and Johnson and Johnson, Inc.*, Opening Expert Report of Stephen R. Hanson, Ph.D. (Civil Action No. 03-283-SLR).

Boston Scientific SCIMED, Inc. and Boston Scientific Corporation v. *Cordis Corporation and Johnson and Johnson, Inc.*, Opening Expert Report of Robson F. Storey, Ph.D. (Civil Action No. 03-283-SLR).

Boston Scientific SCIMED, Inc. and Boston Scientific Corporation v. *Cordis Corporation and Johnson and Johnson, Inc.*, Rebuttal Expert Report of Kinam Park, Ph.D. (Civil Action No. 03-283-SLR).

Cordis Corporation v. *Boston Scientific Corporation and SCIMED Life Systems, Inc.* (C.A. No. 03-027-SLR) and *Boston Scientific SCIMED, Inc., and Boston Scientific Corporation* v. *Cordis Corporation and Johnson and Johnson, Inc.* (C.A. No. 03-283-SLR) Combined Post-Hearing Brief In Support Of Cordis Corporation's Motion For Preliminary Injunction in C.A. No. 03-027-SLR, And In Opposition to Plaintiffs' Motion For Preliminary Injunction in C.A. No. 03-283-SLR.

Cordis Corporation v. *Boston Scientific Corporation and SCIMED Life Systems, Inc.* (C.A. No. 03-027-SLR) *Boston Scientific SCIMED, Inc., and Boston Scientific Corporation* v. *Cordis Corporation and Johnson and Johnson, Inc.* (C.A. No. 03-283-SLR). Boston Scientific's Opening Post-Hearing Brief.

Cordis Corporation v. *Boston Scientific Corporation and SCIMED Life Systems, Inc.* (C.A. No. 03-027-SLR) *Boston Scientific SCIMED, Inc., and Boston Scientific Corporation* v. *Cordis Corporation and Johnson and Johnson, Inc.* (C.A. No. 03-283-SLR). Combined Post-Hearing Answering Brief In Support of Cordis Corporation's Motion For Preliminary Injunction In C.A. No. 03-027-SLR, And In Opposition To Plaintiffs Motion For Preliminary Injunction in C.A. No. 03-283-SLR.

Wu et al., Silicone-covered self-expanding metallic stents for the palliation of malignant esophageal obstruction and esophagorespiratory fistulas: experience in 32 patients and a review of the literature, *Gastrointestinal Endoscopy*, 1994, pp. 22-33, vol. 40, No. 1, Portland Oregon.

Binsmoeller, et al., Silicone-Covered Expandable Metallic Stents in the Esophagus: An Experimental Study, Endoscopy, 1992, pp. 416-420, vol. 24, Georg Thieme Verlag Stuttgart New York.

Boston Scientific SCIMED, Inc., and Boston Scientific Corporation v. *Cordis Corporation and Johnson and Johnson, Inc.*, Answering Memorandum in Opposition to Plantiff's Motion for a Preliminary Injunction and Appendix thereto (Civil Action No. 03-283-SLR).

Boston Scientific SCIMED, Inc., and Boston Scientific Corporation v. *Cordis Corporation and Johnson and Johnson, Inc.*, Plaintiff's Reply Brief in Support of Their Motion for Preliminary Injunction.

Rhine, Polymers for Sustained Macromolecule Release: Procedures to Fabricate Reproducible Delivery Systems and Control Release Kinetics, *Journal of Pharmaceutical Sciences*, 1 980, pp. 265-270, vol. 69, No. 3.

Langer et al., Controlled Release of Macromolecules From Polymers, *Biomedical Polymers Polymeric Materials and Pharmaceuticals for Biomedical Use*, 1980, pp. 112-137, Academic Press, Inc., New York, NY.

Langer et al., Applications of Polymeric Delivery Systems for Macromolecules and Factors Controlling Release Kinetics.

Rhine et al., A Method to Achieve Zero-Order Release Kinetics From Polymer Matric Drug Delivery Systems, pp. 67-72.

Langer et al., Polymers for the Sustained Release of Macromolecules: Controlled and Magnetically Modulated Systems, *Better Therapy With Existing Drugs: New Uses and Delivery Systems*, 1981, pp. 179-216, Merck Sharp & Dohme International, Rahway, NJ.

Hsieh, et al., Zem-Order Controlled-Release Polymer Matrices for Micro-and-Macromolecules, *Journal of Pharmaceutical Sciences*, 1983 pp. 17-22, vol. 72, No. 1.

Brown et al., In Vivo and In Vitro Release of Macromolecules from Polymeric Drug Delivery Systems, *Journal of Pharmaceutical Sciences*, 1983, pp. 1181-1185, vol. 72, No. 10.

Langer, Implantable Controlled Release Systems, *Pharmac. Ther.*, 1983, pp. 35-51, vol. 21, printed in Great Britain.

Kost et al., Controlled Release of Bioactive Agents, *Trends in Biotechnology*, 1984, pp. 47-51, vol. 2, No. 2, Elsevier BV Amsterdam.

Bawa et al., An Explanation for the Controlled Release of Macromolecules from Polymers, *Journal of Controlled Release*, 1985, pp. 259-267, vol. 1 Elsevier Science BV Amersterdam.

Leong et al., Polymeric controlled drug delivery, 1987, pp. 199-233, vol. 1/3, Elsevier Science Publishers BV Amsterdam.

Langer, Polymeric Delivery Systems, *Targeting of Drugs 2 Optimization Strategies*, 1989, pp. 165-174, Plenum Press, New York and London.

Langer, Biomaterials in Controlled Drug Delivery; New Perspectives from Biotechnological Advances: *Pharmaceutical Technology*, 1989, pp. 18, 23-24, 26, 28, 30.

Langer, Controlled Release Systems, pp. 115-124.

Laurencin et al., Polymeric Controlled Release Systems: New Methods for Drug Delivery, *Clinics in Laboratory Medicine*, 1987, pp. 301-323, vol. 7, No. 2, WB Saunders Company, Philadelphia.

Langer, Biopolymers in Controlled Release Systems, *Polymeric Biomaterials*, pp. 161-169.

Tsong-Pin Hsu et al., Polymers for the Controlled Release of Macromolecules: Effect of Molecular Weight of Ethylene-vinyl Acetate Copolymer, *Journal of Biomedical Materials Research*, 1985, pp. 445-460, vol. 19.

Langer, Polymers and Drug Delivery Systems, *Long-Acting Contraceptive Delivery Systems*, 1983, pp. 23-32, Harper & Row, Philadelphia, PA.

Langer, New Drug Delivery Systems: What the Clinician Can Expect, *Drug Therapy*, 1983, pp. 217-231.

Langer, et al., Chemical and Physical Structure of Polymers as Carriers for Controlled Release of Bioactive Agents: A Review, *Rev. Macromol. Chem. Phys.*, 1983, pp. 61-126.

Langer, Polymeric Delivery Systems for Controlled Drug Release, *Chem. Eng. Commun.* 1980, pp. 1-48-vol. 6, Gordon and Breach Science Publishers, Inc. USA.

Langer, et al., Biocompatibility of Polymeric Delivery Systems for Macomolecules, *Journal of Biomedical Materials Research*, 1981, pp. 267-277, vol. 15.

Langer, Controlled Release: A New Approach to Drug Delivery, *Technology Review*, 1981, pp. 26-34.

Langer, et al., Sustained Release of Macromolecules from Polymers, *Polymeric Delivery Systems*, pp. 175-176, Gordon and Breach Science Publishers, New York.

Langer, Polymers for the Sustained Release of Proteins and other Macromolecules, *Nature*, 1976, pp. 797, 263, 799-800, vol. 263, No. 5580.

Baker, et al., Controlled Release: Mechanisms and Rates (1974).

Hanson, et al., In Vivo Evaluation of Artificial Surfaces with a Nonhum Primate Model of Arterial Thrombosis,*J Lab Clin. Med.*, Feb. 1980, pp. 289-304.

Baker, Controlled Release of Biologically Active Agents (1987) pp. 1-275.

Cordis Corporation v. *Boston Scientific Corporation* (CA. No. 03-27-SLR) and *Boston Scientific Scimed, Inc.*, v. *Cordis Corporation and Johnson & Johnson, Incorporated* (CA. No. 03-283-SLR) Hearing Transcripts for Jul. 21, 2003, Jul. 22, 2003, Jul. 23, 2003.

Cordis Corporation v. *Boston Scientific Corporation et al.* (CA. No. 03-027-SLR), and *Boston Scientific Scimed, Inc. et al.* v *Cordis Corporation et al.* (CA. No. 03-283-SLR). Boston Scientific's Post-Hearing Reply Brief and Exhibits Thereto, Sep. 12, 2003.

Cordis Corporation v. *Boston Scientific Corporation et al.* (CA. No. 03-027-SLR), and *Boston Scientific Scimed, Inc. et al.* v. *Cordis Corporation et al.* (CA. 03-283-SLR), Memorandum Order, Nov. 21, 2003.

Cordis Corporation v. *Boston Scientific Corporation et al.* (CA. No. 03-027-SLR), and *Boston Scientific Scimed, Inc. et al.* v. *Cordis Corporation et al* (CA. No. 03-283-SLR), Deposition Transcript of Julio C. Palmaz.

Arterial Vascular Engineering, Inc. v. *Cordis Corporation, Johnson & Johnson and Expandable Grafts Partnership*, Cordis Corporation and Johnson & Johnson's Answer and Counterclaim, Feb. 27, 1998 (Civil Action No. 97-700-SLR).

Plea Notes in *EPG et al.* v. *Boston Scientific et al.*in Netherlands (Sep. 12, 1997).

Provisional Judgment *EPG et al.* v. *Boston Scientific et al.* in Netherlands (Oct. 29, 1997).

Trial testimony transcripts from the *Cordis Corporation et al.* v. *Medtronic AVE, Inc., et al.* liability trial dated Nov. 6-9, 13-17 and 20-21, 2000.

Jury verdict form from the *Cordis Corporation et al.* v. *Medtronic AVE, Inc. et al.* liability trial.

Hearing testimony transript from the consolidated *Cordis Corporation et al.* v. *Medtronic AVE, Inc. et al. and Boston Scientific Corporation et al.* inequitable conduct hearing dated Feb 7-9 and 12, 2001.

Cordis Corporation v. *Metronic Ave., Inc., et al.* OPINION, 97-550-SLR, dated Mar. 28, 2002.

Cordis Corporation v. *Advanced Cardiovascular Systems, Inc. et al.* (CA. No. 97-550-SLR), *Medtronic AVE, Inc.* v. *Cordis Corporation et al.* (CA. No. 97-700-SLR), *Boston Scientific Corporation* v. *Athicon, Inc. etal*(CA. No. 98-19-SLR), Expert Report of John T. Goolkasian, Esq.

Cordis Corporation v. *Advanced Cardiovascular Systems, Inc. et al.* (CA. No. 97-550-SLR), *Medtronic AVE, Inc.* v. *Cordis Corporation et al* (CA. No. 97-700-SLR), *Boston Scientific Corporation* v. *Athicon, Inc. et al* (CA. 98-19-SLR), Expert Report of John F. Witherspoon.

FIG. 1

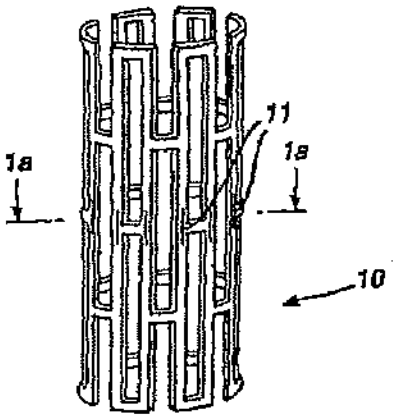


FIG. 1a

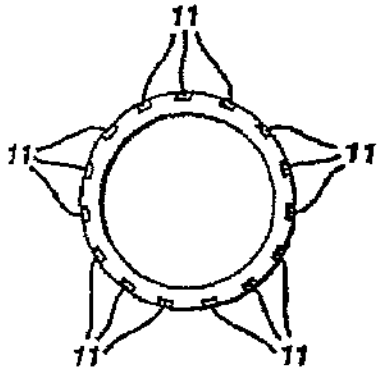


FIG. 2a

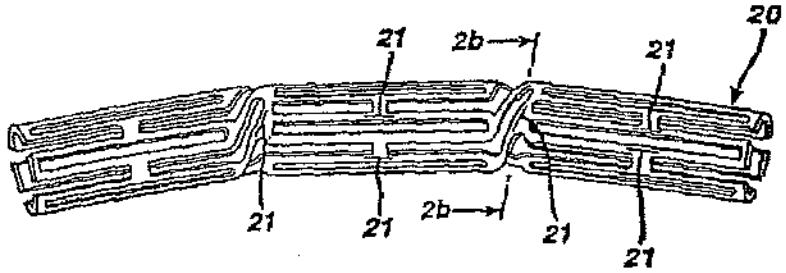


FIG. 2b

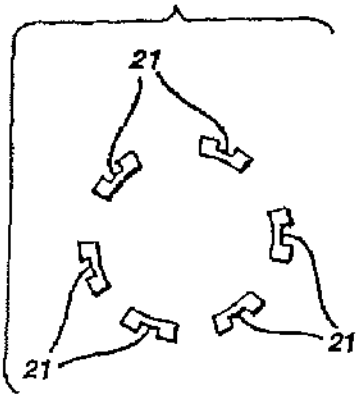


FIG. 3a

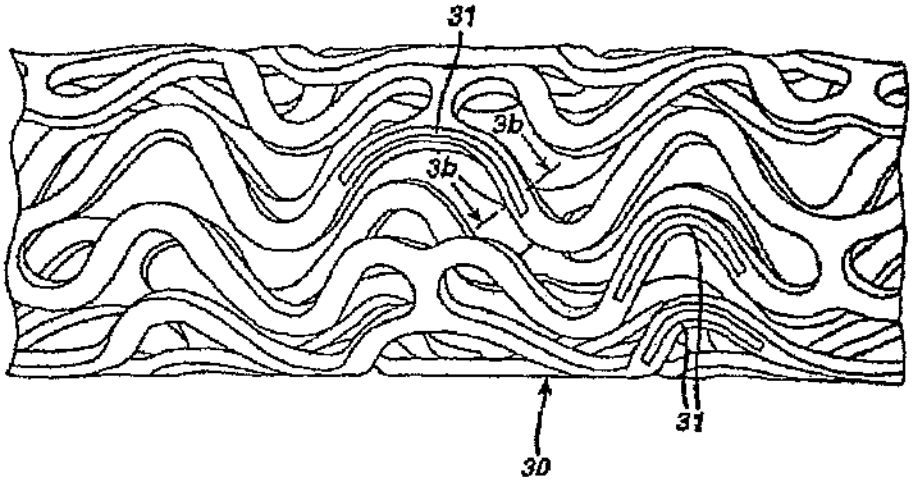


FIG. 3b

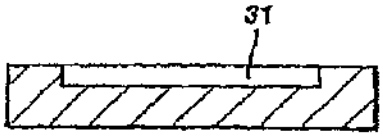
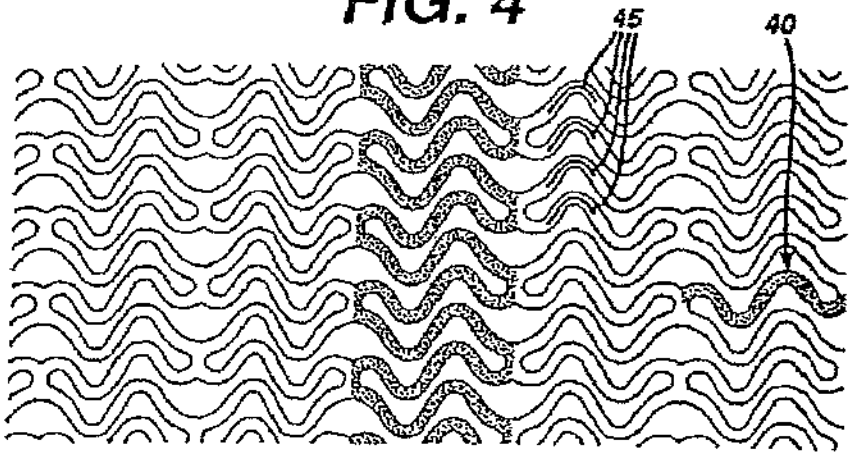


FIG. 4



LOCAL DELIVERY OF RAPAMYCIN FOR TREATMENT OF PROLIFERATIVE SEQUELAE ASSOCIATED WITH PTCA PROCEDURES, INCLUDING DELIVERY USING A MODIFIED STENT

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of Ser. No. 10/951,385, filed Sep. 28, 2004, now pending, which is a continuation of Ser. No. 10/408,328, filed Apr. 7, 2003, now issued as U.S. Pat. No. 6,808,536, which is a continuation of application Ser. No. 09/874,117, filed Jun. 4, 2001, now issued as U.S. Pat. No. 6,585,764, which is a continuation of application Ser. No. 09/061,568, filed Apr. 16, 1998, now issued as U.S. Pat. No. 6,273,913, which in turn claims benefit of provisional application Ser. No. 60/044,692, filed Apr. 18, 1997. The disclosures of these prior applications are incorporated herein by reference in their entirety.

FIELD OF THE INVENTION

Delivery of rapamycin locally, particularly from an intravascular stent, directly from micropores in the stent body or mixed or bound to a polymer coating applied on stent, to inhibit neointimal tissue proliferation and thereby prevent restenosis. This invention also facilitates the performance of the stent in inhibiting restenosis.

BACKGROUND OF THE INVENTION

Re-narrowing (restenosis) of an atherosclerotic coronary artery after percutaneous transluminal coronary angioplasty (PTCA) occurs in 10 50% of patients undergoing this procedure and subsequently requires either further angioplasty or coronary artery bypass graft. While the exact hormonal and cellular processes promoting restenosis are still being determined, our present understanding is that the process of PTCA, besides opening the atherosclerotically obstructed artery, also injures resident coronary arterial smooth muscle cells (SMC). In response to this injury, adhering platelets, infiltrating macrophages, leukocytes, or the smooth muscle cells (SMC) themselves release cell derived growth factors with subsequent proliferation and migration of medial SMC through the internal elastic lamina to the area of the vessel intima. Further proliferation and hyperplasia of intimal SMC and, most significantly, production of large amounts of extracellular matrix over a period of 3-6 months results in the filling in and narrowing of the vascular space sufficient to significantly obstruct coronary blood flow.

Several recent experimental approaches to preventing SMC proliferation have shown promise although the mechanisms for most agents employed are still unclear. Heparin is the best known and characterized agent causing inhibition of SMC proliferation both in vitro and in animal models of balloon angioplasty-mediated injury. The mechanism of SMC inhibition with heparin is still not known but may be due to any or all of the following: 1) reduced expression of the growth regulatory protooncogenes c-fos and c-myc, 2) reduced cellular production of tissue plasminogen activator; are 3) binding and dequestration of growth regulatory factors such as fibrovalent growth factor (FGF).

Other agents which have demonstrated the ability to reduce myointimal thickening in animal models of balloon vascular injury are angiopeptin (a somatostatin analog), calcium channel blockers, angiotensin converting enzyme inhibitors (captopril, cilazapril), cyclosporin A, trapidil (an antianginal, antiplatelet agent), terbinafine (antifungal), colchicine and taxol (antitubulin antiproliferatives), and c-myc and c-myb antinsense oligonucleotides.

Additionally, a goat antibody to the SMC mitogen platelet derived growth factor (PDGF) has been shown to be effective in reducing myointimal thickening in a rat model of balloon angioplasty injury, thereby implicating PDGF directly in the etiology of restenosis. Thus, while no therapy has as yet proven successful clinically in preventing restenosis after angioplasty, the in vivo experimental success of several agents known to inhibit SMC growth suggests that these agents as a class have the capacity to prevent clinical restenosis and deserve careful evaluation in humans.

Coronary heart disease is the major cause of death in men over the age of 40 and in women over the age of fifty in the western world. Most coronary artery-related deaths are due to atherosclerosis. Atherosclerotic lesions which limit or obstruct coronary blood flow are the major cause of ischemic heart disease related mortality and result in 500,000–600,000 deaths in the United States annually. To arrest the disease process and prevent the more advanced disease states in which the cardiac muscle itself is compromised, direct intervention has been employed via percutaneous transluminal coronary angioplasty (PTCA) or coronary artery bypass graft (CABG) PTCA is a procedure in which a small balloon-tipped catheter is passed down a narrowed coronary artery and then expanded to re-open the artery. It is currently performed in approximately 250,000-300,000 patients each year. The major advantage of this therapy is that patients in which the procedure is successful need not undergo the more invasive surgical procedure of coronary artery bypass graft. A major difficulty with PTCA is the problem of post-angioplasty closure of the vessel, both immediately after PTCA (acute reocclusion) and in the long term (restenosis).

The mechanism of acute reocclusion appears to involve several factors and may result from vascular recoil with resultant closure of the artery and/or deposition of blood platelets along the damaged length of the newly opened blood vessel followed by formation of a fibrin/red blood cell thrombus. Recently, intravascular stents have been examined as a means of preventing acute reclosure after PTCA.

Restenosis (chronic reclosure) after angioplasty is a more gradual process than acute reocclusion: 30% of patients with subtotal lesions and 50% of patients with chronic total lesions will go on to restenosis after angioplasty. While the exact mechanism for restenosis is still under active investigation, the general aspects of the restenosis process have been identified.

In the normal arterial will, smooth muscle cells (SMC) proliferate at a low rate (<0.1%/day; ref). SMC in vessel wall exists in a contractile phenotype characterized by 80 90% of the cell cytoplasmic volume occupied with the contractile apparatus. Endoplasmic reticulum, golgi bodies, and free ribosomes are few and located in the perinuclear region. Extracellular matrix surrounds SMC and is rich in heparin-like glycosylaminoglycans which are believed to be responsible for maintaining SMC in the contractile phenotypic state.

Upon pressure expansion of an intracoronary balloon catheter during angioplasty, smooth muscle cells within the arterial wall become injured. Cell derived growth factors such as platelet derived growth factor (PDGF), basic fibroblast growth factor (bFGF), epidermal growth factor (EGF), etc. released from platelets (i.e., PDGF) adhering to the

damaged arterial luminal surface, invading macrophages and/or leukocytes, or directly from SMC (i.e., BFGF) provoke a proliferation and migratory response in medial SMC. These cells undergo a phenotypic change from the contractile phenotype to a synthetic phenotype characterized by only few contractile filament bundles but extensive rough endoplasmic reticulum, golgi and free ribosomes. Proliferation/migration usually begins within 1–2 days post-injury and peaks at 2 days in the media, rapidly declining thereafter (Campbell et al., In: Vascular Smooth Muscle Cells in Culture, Campbell, J. H. and Campbell, G. R., Eds, CRC Press, Boca, Ratioh, 1987, pp. 39–55); Clowes, A. W. and Schwartz, S. M., Circ. Res. 56:139–145, 1985).

Finally, daughter synthetic cells migrate to the intimal layer of arterial smooth muscle and continue to proliferate. Proliferation and migration continues until the damaged luminal endothelial layer regenerates at which time proliferation ceases within the intima, usually within 7–14 days postinjury. The remaining increase in intimal thickening which occurs over the next 3–6 months is due to an increase in extracellular matrix rather than cell number. Thus, SMC migration and proliferation is an acute response to vessel injury while intimal hyperplasia is a more chronic response. (Liu et al., Circulation, 79:1374–1387, 1989).

Patients with symptomatic reocclusion require either repeat PTCA or CABG. Because 30–50% of patients undergoing PTCA will experience restenosis, restenosis has clearly limited the success of PTCA as a therapeutic approach to coronary artery disease. Because SMC proliferation and migration are intimately involved with the pathophysiological response to arterial injury, prevention of SMC proliferation and migration represents a target for pharmacological intervention in the prevention of restenosis.

SUMMARY OF THE INVENTION

Novel Features and Applications to Stent Technology Currently, attempts to improve the clinical performance of stents have involved some variation of either applying a coating to the metal, attaching a covering or membrane, or embedding material on the surface via ion bombardment. A stent designed to include reservoirs is a new approach which offers several important advantages over existing technologies.

Local Drug Delivery from a Stent to Inhibit Restenosis

In this application, it is desired to deliver a therapeutic agent to the site of arterial injury. The conventional approach has been to incorporate the therapeutic agent into a polymer material which is then coated on the stent. The ideal coating material must be able to adhere strongly to the metal stent both before and after expansion, be capable of retaining the drug at a sufficient load level to obtain the required dose, be able to release the drug in a controlled way over a period of several weeks, and be as thin as possible so as to minimize the increase in profile. In addition, the coating material should not contribute to any adverse response by the body (i.e., should be non-thrombogenic, non-inflammatory, etc.). To date, the ideal coating material has not been developed for this application.

An alternative would be to design the stent to contain reservoirs which could be loaded with the drug. A coating or membrane of biocompatable material could be applied over the reservoirs which would control the diffusion of the drug from the reservoirs to the artery wall.

One advantage of this system is that the properties of the coating can be optimized for achieving superior biocompatibility and adhesion properties, without the addition requirement of being able to load and release the drug. The size, shape, position, and number of reservoirs can be used to control the amount of drug, and therefore the dose delivered.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood in connection with the following figures in which

FIGS. 1 and 1A are top views and section views of a stent containing reservoirs as described in the present invention;

FIGS. 2*a* and 2*b* are similar views of an alternate embodiment of the stent with open ends;

FIGS. 3*a* and 3*b* are further alternate figures of a device containing a grooved reservoir; and

FIG. 4 is a layout view of a device containing a reservoir as in FIG. 3.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Pharmacological attempts to prevent restenosis by pharmacologic means have thus far been unsuccessful and all involve systemic administration of the trial agents. Neither aspirin-dipyridamole, ticlopidine, acute heparin administration, chronic warfarin (6 months) nor methylprednisolone have been effective in preventing restenosis although platelet inhibitors have been effective in preventing acute reocclusion after angioplasty. The calcium antagonists have also been unsuccessful in preventing restenosis, although they are still under study. Other agents currently under study include thromboxane inhibitors, prostacyclin mimetics, platelet membrane receptor blockers, thrombin inhibitors and angiotensin converting enzyme inhibitors. These agents must be given systemically, however, and attainment of a therapeutically effective dose may not be possible; antiproliferative (or anti-restenosis) concentrations may exceed the known toxic concentrations of these agents so that levels sufficient to produce smooth muscle inhibition may not be reached (Lang et al., 42 Ann. Rev. Med., 127–132 (1991); Popma et al., 84 Circulation, 1426–1436 (1991)).

Additional clinical trials in which the effectiveness for preventing restenosis of dietary fish oil supplements, thromboxane receptor antagonists, cholesterol lowering agents, and serotonin antagonists has been examined have shown either conflicting or negative results so that no pharmacological agents are as yet clinically available to prevent post-angioplasty restenosis (Franklin, S. M. and Faxon, D. P., 4 Coronary Artery Disease, 2-32-242 (1993); Serruys, P. W. et al., 88 Circulation, (part 1) 1588–1601, (1993).

Conversely, stents have proven useful in preventing reducing the proliferation of restenosis. Stents, such as the stent 10 seen in layout in FIG. 4, balloon-expandable slotted metal tubes (usually but not limited to stainless steel), which when expanded within the lumen of an angioplastied coronary artery, provide structural support to the arterial wall. This support is helpful in maintaining an open path for blood flow. In two randomized clinical trials, stents were shown to increase angiographic success after PTCA, increase the stenosed blood vessel lumen and to reduce the lesion recurrence at 6 months (Serruys et al., 331 New Eng Jour. Med. 495, (1994); Fischman et al., 331 New Eng Jour. Med. 496–501 (1994). Additionally, in a preliminary trial, heparin coated stents appear to possess the same benefit of reduction in stenosis diameter at follow-up as was observed with non-heparin coated stents. Additionally, heparin coating appears to have the added benefit of producing a reduction in sub-acute thrombosis after stent implantation (Serruys et

al., 93 Circulation, 412–422. (1996). Thus, 1) sustained mechanical expansion of a stenosed coronary artery has been shown to provide some measure of restenosis prevention, and 2) coating of stents with heparin has demonstrated both the feasibility and the clinical usefulness of delivering drugs to local, injured tissue off the surface of the stent.

Numerous agents are being actively studied as antiproliferative agents for use in restenosis and have shown some activity in experimental animal models. These include: heparin and heparin fragments (Clowes and Karnovsky, 265 Nature, 25 626, (1977); Guyton, J. R. et al. 46 Circ. Res., 625–634, (1980); Clowes, A. W. and Clowes, M. M., 52 Lab. Invest., 611–616, (1985); Clowes, A. W. and Clowes, M. M., 58 Circ. Res., 839–845 (1986); Majesky et al., 61 Circ Res., 296-300, (1987); Snow et al., 137 Am. J. Pathol., 313–330 (1990); Okada, T. et al., 25 Neurosurgery, 92–898. (1989) colchicine (Currier, J. W. et al., 80 Circulation, 11-66, (1989), taxol (ref), agiotensin converting enzyme (ACE) inhibitors (Powell, J. S. et al., 245 Science, 186–188 (1989), angiopeptin (Lundergan, C. F. et al., 17 Am. J. Cardiol. (Suppl. B); 132B-136B (1991), Cyclosporin A (Jonasson, L. et. al., 85 Proc. Nati, Acad. Sci., 2303 (1988), goat-anti-rabbit PDGF antibody (Ferns, G. A. A., et al., 253 Science, 1129–1132 (1991), terbinafine (Nemecek, G. M. et al., 248 J. Pharmacol. Exp. Thera., 1167-11747 (1989), trapidil (Liu, M. W. et al., 81 Circulation, 1089-1093 (1990), interferon-gamma (Hansson, G. K. and Holm, 84 J. Circulation, 1266-1272 (1991), steroids (Colburn, M. D. et al., 15 J. Vasc. Surg., 510–518 (1992), see also Berk, B. C. et al., 17 J. Am. Coll. Cardiol., 111B–117B (1991), ionizing radiation (ref), fusion toxins (ref) antisense oligonucleotides (ref), gene vectors (ref), and rapamycin (see below).

Of particular interest in rapamycin. Rapamycin is a macrolide antibiotic which blocks IL-2-mediated T-cell proliferation and possesses antiinflammatory activity. While the precise mechanism of rapamycin is still under active investigation, rapamycin has been shown to prevent the G.sub.1 to S phase progression of T-cells through the cell cycle by inhibiting specific cell cyclins and cyclin-dependent protein kinases (Siekierka, Immunol. Res. 13: 110–116, 1994). The antiproliferative action of rapamycin is not limited to T-cells; Marx et al. (Circ Res 76:412–417, 1995) have demonstrated that rapamycin prevents proliferation of both rat and human SMC in vitro while Poon et al. have shown the rat, porcine, and human SMC migratin can also be inhibited by rapamycin (J Clin Invest 98: 2277–2283, 1996). Thus, rapamycin is capable of inhibiting both the inflammatory response known to occur after arterinl injury and stent implantation, as well as the SMC hyperproliferative response. In fact, the combined effects of rapamycin have been demonstrated to result in a diminished SMC hyperproliferative response in a rat femoral artery graft model and in both rat and porcine arterial balloon injury models (Gregory et al., Transplantation 55:1409–1418, 1993; Gallo et al., in press, (1997)). These observations clearly support the potential use of rapamycin in the clinical setting of post-angioplasty restenosis.

Although the ideal agent for restenosis has not yet been identified, some desired properties are clear: inhibition of local thrombosis without the risk systemic bleeding complications and continuous and prevention of the dequale of arterial injury, including local inflammation and sustained prevention smooth muscle proliferation at the site of angioplasty without serious systemic complications. Inasmuch as stents prevent at least a portion of the restenosis process, an agent which prevents inflammation and the proliferation of SMC combined with a stent may provide the most efficacious treatment for post-angioplasty restenosis.

Experiments

Agents: Rapamycin (sirolimus) structural analogs (macrocyclic lactones) and inhibitors of cell-cycle progression.

Delivery Methods: These can vary:

- Local delivery of such agents (rapamycin) from the struts of a stent, from a stent graft, grafts, stent cover or sheath.
- Involving comixture with polymers (both degradable and nondegrading) to hold the drug to the stent or graft.
- or entrapping the drug into the metal of the stent or graft body which has been modified to contain micropores or channels, as will be explained further herein.
- or including covalent binding of the drug to the stent via solution chemistry techniques (such as via the Carmeda process) or dry chemistry techniques (e.g. vapour deposition methods such as rf-plasma polymerization) and combinations thereof.
- Catheter delivery intravascularly from a tandem balloon or a porous balloon for intramural uptake.
- Extravascular delivery by the pericardial route.
- Extravascular delivery by the advential application of sustained release formulations.

Uses:

- for inhibition of cell proliferation to prevent neointimal proliferation and restenosis.
- prevention of tumor expansion from stents.
- prevent ingrowth of tissue into catheters and shunts inducing their failure.

1. Experimental Stent Delivery Method—Delivery from Polymer Matrix:

Solution of Rapamycin, prepared in a solvent miscible with polymer carrier solution, is mixed with solution of polymer at final concentration range 0.001 weight % to 30 weight % of drug. Polymers are biocompatible (i.e., not elicit any negative tissue reaction or promote mural thrombus formation) and degradable, such as lactone-based polyesters or copolyesters, e.g., polylactide, polycaprolactonglycolide, polyorthoesters, polyanhydrides; poly-amino acids; polysaccharides; polyphosphazenes; poly(ether-ester) copolymers, e.g., PEO-PLLA, or blends thereof. Nonabsorbable biocompatible polymers are also suitable candidates. Polymers such as polydimethylsiolxane; poly(ethylene-vingylacetate); acrylate based polymers or copolymers, e.g., poly(hydroxyethyl methylmethacrylate, polyvinyl pyrrolidinone; fluorinated polymers such as polytetrafluoroethylene; cellulose esters.

Polymer/drug mixture is applied to the surfaces of the stent by either dip-coating, or spray coating, or brush coating or dip/spin coating or combinations thereof, and the solvent allowed to evaporate to leave a film with entrapped rapamycin.

2. Experimental Stent Delivery Method—Delivery from Microporous Depots in Stent Through a Polymer Membrane Coating:

Stent, whose body has been modified to contain micropores or channels is dipped into a solution of Rapamycin, range 0.001 wt % to saturated, in organic solvent such as acetone or methylene chloride, for sufficient time to allow solution to permeate into the pores. (The dipping solution can also be compressed to improve the loading efficiency.) After solvent has been allowed to evaporate, the stent is dipped briefly in fresh solvent to remove excess surface bound drug. A solution of polymer, chosen from any

identified in the first experimental method, is applied to the stent as detailed above. This outer layer of polymer will act as diffusion-controller for release of drug.

3. Experimental Stent Delivery Method—Delivery via Lysis of a Covalent Drug Tether:

Rapamycin is modified to contain a hydrolytically or enzymatically labile covalent bond for attaching to the surface of the stent which itself has been chemically derivatized to allow covalent immobilization. Covalent bonds such as ester, amides or anhydrides may be suitable for this.

4. Experimental Method—Pericardial Delivery:

A: Polymeric Sheet

Rapamycin is combined at concentration range previously highlighted, with a degradable polymer such as poly(cnprolactone-gylcolid-e) or non-degradable polymer, e.g., polydimethylsiloxane, and mixture cast as a thin sheet, thickness range 10.mu. to 1000.mu. The resulting sheet can be wrapped perivascularly on the target vessel. Preference would be for the absorbable polymer.

B: Conformnl Coating:

Rapamycin is combined with a polymer that has a melting temperature just above 37° C., range 40°–45° C. Mixture is applied in a molten state to the external side of the target vessel. Upon cooling to body temperature the mixture solidifies conformably to the vessel wall. Both non-degradable and absorbable biocompatible polymers are suitable.

As seen in the figures it is also possible to modify currently manufactured stents in order to adequately provide the drug dosages such as rapamycin. As seen in FIGS. *1a*, *2a* and *3a*, any stent strut 10, 20, 30 can be modified to have a certain reservoir or channel 11, 21, 31. Each of these reservoirs can be open or closed as desired. These reservoirs can hold the drug to be delivered. FIG. 4 shows a stent 40 with a reservoir 45 created at the apex of a flexible strut. Of course, this reservoir 45 is intended to be useful to deliver rapamycin or any other drug at a specific point of flexibility of the stent. Accordingly, this concept can be useful for "second generation" type stents.

In any of the foregoing devices, however, it is useful to have the drug dosage applied with enough specificity and enough concentration to provide an effective dosage in the lesion area. In this regard, the reservoir size in the stent struts must be kept at a size of about 0.0005" to about 0.003". Then, it should be possible to adequately apply the drug dosage at the desired location and in the desired amount.

These and other concepts will are disclosed herein. It would be apparent to the reader that modifications are possible to the stent or the drug dosage applied. In any event, however, the any obvious modifications should be perceived to fall within the scope of the invention which is to be realized from the attached claims and their equivalents.

What is claimed:

1. A metallic stent having a coating applied thereto, wherein:

said coating comprises a mixture of a biocompatible polymeric carrier and a therapeutic agent;

said polymeric carrier comprises at least one nonabsorbable polymer;

said therapeutic agent is rapamycin, or a macrocyclic lactone analog thereof, present in an amount effective to inhibit neointimal proliferation; and

said stent provides a controlled release of said therapeutic agent over a period of several weeks.

2. The metallic stent according to claim 1 wherein said therapeutic agent is a macrocyclic lactone analog of rapamycin.

3. The metallic stent according to claim 1 wherein said biocompatible polymeric carrier comprises a fluorinated polymer.

4. The metallic according to claim 3 wherein said biocompatible polymeric carrier further comprises an acrylate-based polymer or copolymer.

5. A method of inhibiting neointimal proliferation in a coronary artery resulting from percutaneous transluminal coronary angioplasty comprising implanting a metallic stent according to any one of claims 1 to 4 in the lumen of said coronary artery.

* * * * *

EXHIBIT B

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

CORDIS CORPORATION, Plaintiff, vs. ABBOTT LABORATORIES, Defendant.	Civil Action No. **COMPLAINT AND DEMAND FOR JURY TRIAL** ***Document Filed Electronically***

Plaintiff Cordis Corporation, by its attorneys, alleges as follows:

THE PARTIES

1. Plaintiff Cordis Corporation ("Cordis"), 33 Technology Drive, Warren, New Jersey, is a Florida corporation with a principal place of business in Warren, New Jersey. Cordis also has facilities in Clark, New Jersey. Cordis is a pioneer in developing invasive

treatments for vascular disease, including the CYPHER® drug-eluting stent, a drug/device combination for the treatment of coronary artery disease.

2. Upon information and belief, Defendant Abbott Laboratories ("Abbott"), 100 Abbott Park Road, North Chicago, IL 60064, is an Illinois corporation with a principal place of business in Illinois.

JURISDICTION AND VENUE

3. This Court has subject matter jurisdiction over Cordis's patent infringement claims under 28 U.S.C. § 1331 and 1338(a).

4. This Court has personal jurisdiction over Abbott. On information and belief, Abbott has systematic and continuous contacts in this judicial District, regularly transacts business within this judicial District, and regularly avails itself of the benefits of this judicial District. For example, Abbott is registered to do business in New Jersey, and has facilities located in this District, including in East Windsor, Cranbury, South Brunswick, Edison, Whippany, and Parsippany, New Jersey. On information and belief, Abbott also has numerous employees in this District, derives substantial revenues from its business operations and sales in this district, and pays taxes in New Jersey based on revenue generated in this District. On information and belief, Abbott also sells and distributes medical devices in this District, including vascular devices.

5. Venue is proper in this District under 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

FACTUAL ALLEGATIONS

6. Abbott is the manufacturer of a drug-eluting stent named XIENCE V Everolimus Eluting Coronary Stent System ("XIENCE V stent"). Abbott has manufactured

thousands of XIENCE V products in the United States for sale in Europe and Asia. Abbott launched the XIENCE V stent in Europe and the Asia Pacific regions in 2006.

7. On June 12, 2007, the United States Patent and Trademark Office ("USPTO") duly and legally issued United States Patent No. 7,229,473, entitled "Local Delivery of Rapamycin For Treatment of Proliferative Sequelae Associated With PTCA Procedures, Including Delivery Using a Modified Stent" (the "'473 patent"). The '473 patent issued to Wright et al., and is assigned to Cordis. Cordis holds all right, title and interest in and to the '473 patent.

8. Abbott has been and is performing acts covered by the claims of the '473 patent, including making and/or using the XIENCE V stent in the United States for sale in Europe and Asia.

9. At present, there are only two companies marketing in the United States drug eluting stents – Cordis and Boston Scientific Corporation. Abbott has publicly announced that it plans to seek approval from the United States Food and Drug Administration in the second quarter of 2007 to sell the XIENCE V stent in the United States. Abbott has also publicly announced that, assuming it receives regulatory approval, it plans to launch the XIENCE V stent in the United States in the first half of 2008. Upon its launch in the United States, the XIENCE V stent will compete directly with Cordis's CYPHER stent, reducing Cordis's market share and causing irreparable harm to Cordis.

10. This action is related to Case Nos. 3:07-cv-02265-JAP-TJB and 3:07-cv-02477-JAP-TJB, which were filed on May 15, 2007 and May 29, 2007, respectively, in this judicial District by Cordis against Abbott. In the 02265 action, Cordis alleged that Abbott was liable for infringement of U.S. Patent No. 7,217,286, which is related to the '473 patent at issue

in this action, by making and/or using the XIENCE V stent in the United States. In the 02477 action, Cordis alleged that Abbott was liable for infringement of U.S. Patent No. 7,223,286, which is also related to the '473 patent at issue in this action.

COUNT I: INFRINGEMENT OF THE '473 PATENT

11. Cordis realleges paragraphs 1-10 above as if fully set forth herein.

12. Abbott is infringing the '473 patent in violation of 35 U.S.C. § 271, including by making and/or using the XIENCE V stent in the United States.

13. Abbott had and has actual notice of the '473 patent, and is infringing the '473 patent with knowledge of Cordis's patent rights. Abbott's actions are willful and deliberate.

PRAYER FOR RELIEF

WHEREFORE, Cordis prays for the following relief against Abbott:

1. For judgment in favor of Cordis that Abbott is infringing Cordis's patent;

2. For a preliminary and permanent injunction pursuant to 35 U.S.C. § 283 prohibiting Abbott from making, using, selling, or offering for sale the infringing products in the United States;

3. For an award of damages for Abbott's infringement of Cordis's patent, together with interest (both pre-and post-judgment), costs, and disbursements as fixed by this Court under 35 U.S.C. § 284;

4. For a determination that Abbott's infringement is willful, and an award of treble the amount of damages and losses sustained by Cordis as a result of Abbott's infringement, under 35 U.S.C. § 284;

5. For a determination that this is an exceptional case within the meaning of 35 U.S.C. § 285, and an award to Cordis of its reasonable attorneys' fees; and

6. For such other and further relief in law or in equity to which Cordis may be justly entitled.

DEMAND FOR JURY TRIAL

Cordis demands a trial by jury of any and all issues triable of right before a jury.

Dated: June 12, 2007.

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