CLAIMS

What is claimed is:

1. An implant for use in delivering at least one therapeutic agent to a target, comprising:

(a) an implant, preferably capable of radial expansion; and

(b) a polymer-free coating layer, wherein the coating layer is formulated with at least one polymer-free excipient and at least one therapeutic agent, wherein the at least one therapeutic agent is an antiproliferative agent, wherein the coating layer is applied to the implant surface, wherein the polymer-free excipient is a non-polymer, linear, branched or cyclic, saturated or unsaturated fatty alcohol or fatty aldehyde, and wherein the formulation of the coating layer comprises from 60 to 95% by weight of the at least one therapeutic agent and 5 to 40% by weight of the at least one polymer-free excipient.

2. The implant of claim 1, wherein the at least one therapeutic agent is a macrocyclic triene immunosuppressive compound.

3. The implant of claim 1 or 2, wherein the implant is a drug eluting stent.

4. The implant of any of the preceding claims, wherein the implant body has a surface that is topographically smooth and/or wherein the surface has no reservoirs and contains a smooth surface free of any texturing or pores.

5. The implant of any of the preceding claims, wherein the implant is devoid of any surface modification that would result in a drug reservoir at more than one point on the implant body surface.

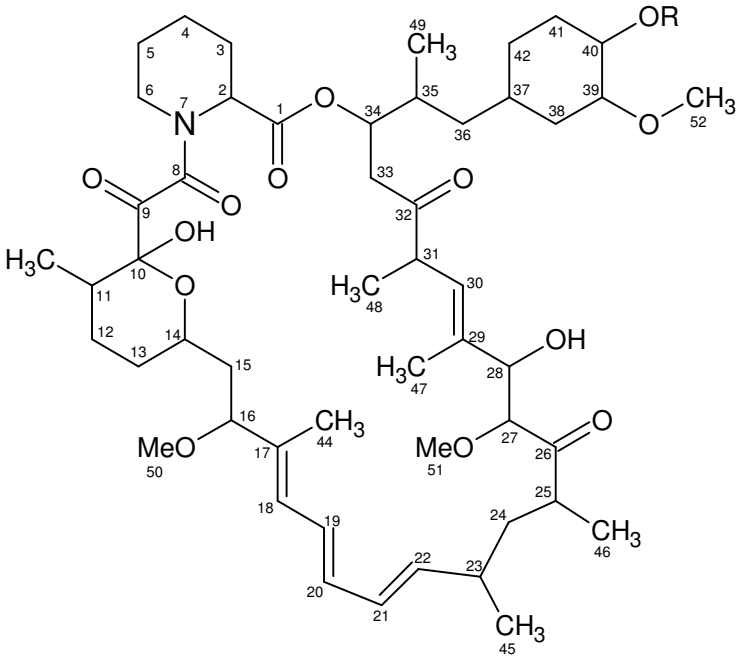
6. The implant of any of the preceding claims, wherein the coating layer is comprised of rapamycin, everolimus, zotarolimus, Biolimus, temsirolimus, tacrolimus or analogs thereof.

7. The implant of any of the preceding claims, wherein the coating layer is comprised of paclitaxel, docetaxel or analogs thereof.

8. The implant of any of the preceding claims, wherein the formulation of the coating layer comprises at least 80% by weight of the at least one therapeutic agent and at least 15% by weight of the at least one polymer-free excipient.

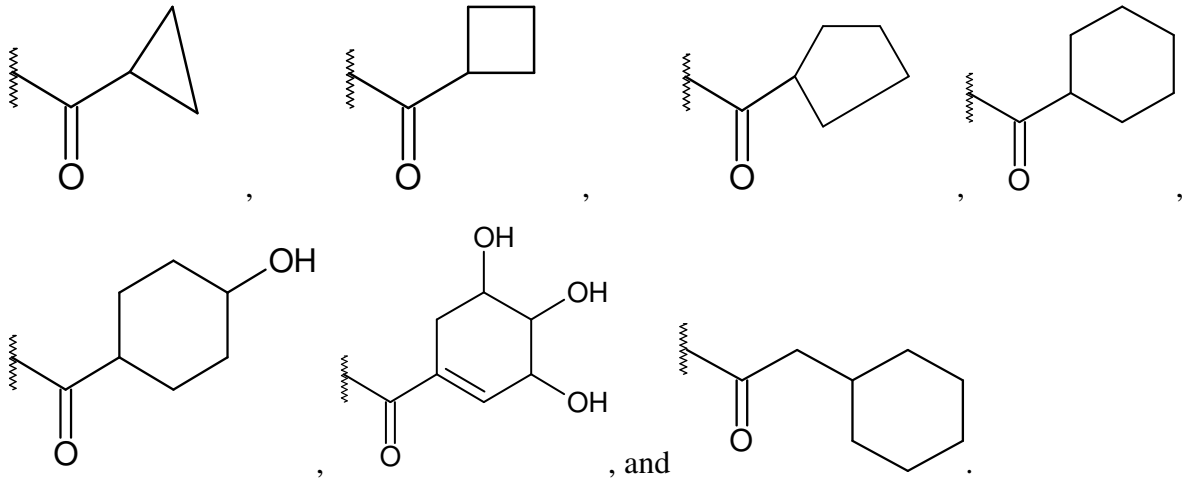
9. The implant of any of the preceding claims, further wherein the at least one polymer free excipient binds to the implant body.

10. The implant of any of the preceding claims, wherein the at least one therapeutic agent has the following structure:



where R is $C(O)-(CH_2)_n-X$, n is 0, 1 or 2, X is a cyclic hydrocarbon having 3-8 carbons and optionally contains one or more unsaturated bonds.

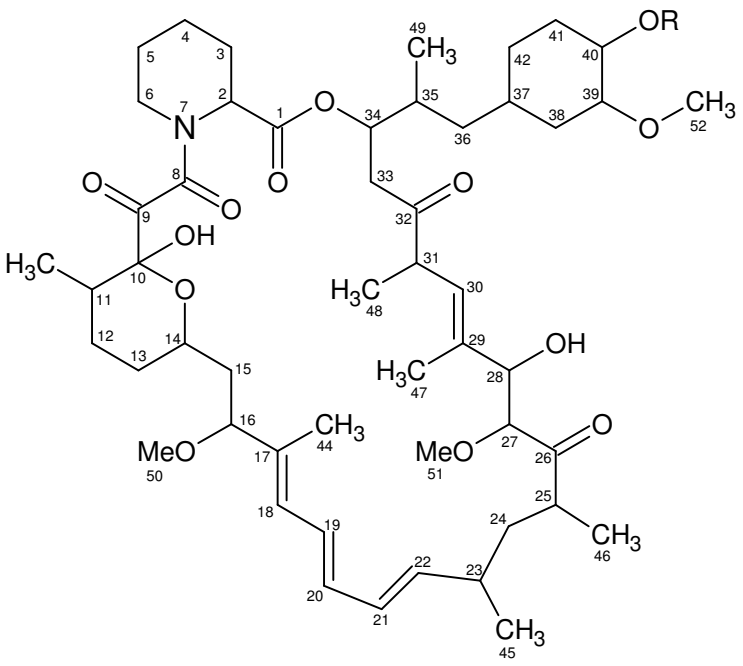
11. The implant of claim 10, further wherein $C(O)-(CH_2)_n-X$ has one of the following structures:



12. The implant of any of the preceding claims, wherein the implant is a stent and the surface of the stent is made microscopically smooth by electropolishing and treated with a layer of amorphous hydrogen rich silicon carbide in a plasma-enhanced, vapor deposition process.

13. Use of a polymer-free formulation comprising from 60 to 95% by weight of the at least one therapeutic agent and 5 to 40% by weight of the at least one polymer-free excipient, wherein the polymer-free excipient is a non-polymer, linear, branched or cyclic, saturated or unsaturated fatty alcohol or fatty aldehyde, as a coating material for medical implants.

14. Use according to claim 13, wherein the antiproliferative agent is a macrocyclic triene immunosuppressive compound having the following structure:



where R is C(O)-$(CH_2)_n$-X, n is 0, 1 or 2, X is a cyclic hydrocarbon having 3-8 carbons and optionally contains one or more unsaturated bonds.