Claims

1. A topical pharmaceutical formulation comprising micro or nanoparticles of a cyclophilin inhibitor for use in the treatment of periodontal disease wherein the cyclophilin inhibitor is selected from cyclosporins, sanglifehrins or cycloundecadepsipeptides and wherein the formulation contains TPGS (Tocopheryl Polyethylene Glycol Succinate).

2. The formulation for use according to claim 1 wherein the inhibitor compound is applied into the gingival pocket.

3. The formulation for use according to claim 1 wherein the inhibitor is cyclosporin A, cyclosporin B, cyclosporin C, cyclosporin D, cyclosporin G, (D)-serine-8-cyclosporin, (D)-[O-hydroxyethylserine]-cyclosporin (IMM-125), MeIle-(4)-cyclosporin (NIM-811), Aliosporivir (Debio-025), SCY-635, or SCY-641.

4. The formulation for use according to claims 1-3 wherein the composition further comprises a poloxamer.

5. The formulation for use according to claims 1-4 wherein the composition comprises 1 % TPGS and 1 % Poloxamer 407.

6. A topical pharmaceutical composition comprising TPGS (Tocopheryl Polyethylene Glycol Succinate) and cyclosporin A wherein the formulation is a suspension of micro-particles or nano-particles.

7. A composition according to claim 6 further comprising a poloxamer.

8. A composition according to claim 7 wherein the composition comprises 1 % TPGS and 1 % Poloxamer 407.

9. A composition according to claims 6-8 wherein the cyclosporin A is crystalline.

10. A composition according to claims 6-8 wherein the cyclosporin A is micronized before formulation.

11. A pharmaceutical composition according to claims 6-10 wherein the formulation consists of particles where greater than 50% of the particles are less than 1 micrometer in diameter.

12. A pharmaceutical composition according to claims 6-11 further comprising a mucoadhesive, wherein the mucoadhesive is selected from lectins, carbopol (polyacrylic acid), chitosan, hydroxyethyl cellulose, hydroxypropyl cellulose, or sodium carboxymethyl cellulose.

13. A pharmaceutical composition according to claims 7-12 further comprising an antimicrobial preservative, wherein the antimicrobial preservative is chlorhexidine.

14. A pharmaceutical composition according to claim 13 wherein the composition is formulated with 15-20% poloxamer 407.

15. A composition according to claims 7-14 for use in the treatment of periodontal disease, wherein the periodontal disease affects humans or canines.