CLAIMS:

1. Use of a composition of high particle density nanoparticles comprising antigen-MHC complexes coupled at a ratio of greater than 50 to 200 to a biocompatible bioabsorbable nanosphere having a diameter of 4 nm or from 5 to 15 nm in the preparation of a medicament for use in preventing or treating an autoimmune disorder when administered to a subject to expand anti-pathogenic autoreactive T cells.

2. Use of a composition of high particle density nanoparticles comprising antigen-MHC complexes coupled at a ratio of greater than 50 to 200 to a biocompatible bioabsorbable nanosphere having a diameter of 4 nm or from 5 to 15 nm in the preparation of a medicament for expanding and/or developing populations of anti-pathogenic autoreactive T-cells in a subject when administered to expand said populations.

3. The use of Claim 1 or 2, wherein a plurality of auto-antigen epitopes are contained in said antigen-MHC complexes.

4. The use of Claim 3, wherein said plurality of auto-antigen epitopes are derived from a single auto-antigen or a plurality of auto-antigens.

5. The use of any of Claims 1-4, wherein the expanded population of anti-pathogenic autoreactive T-cells are antigen specific but suppress in a non-antigen-specific manner.

6. The use of any of Claims 1-5, wherein the administration of said biocompatible bioabsorbable nanosphere depletes the population of cognate or non-cognate pathogenic autoreactive T cells.

7. An auto-antigen epitope-MHC-biocompatible bioabsorbable nanosphere complex comprising a biocompatible core and a biodegradable, bioabsorbable coating on the outer surface of said core and high density antigen-MHC complexes coupled at a ratio of greater than 50 to 200 to a biocompatible bioabsorbable

nanosphere having a diameter of 4 nm or from 5 to 15 nm, wherein the high density antigen-MHC complexes are coupled to the biocompatible core or the biodegradable, bioabsorbable coating.

8. The auto-antigen epitope-MHC biocompatible bioabsorbable nanosphere complex of Claim 7, wherein said biocompatible core comprises a metal, iron, iron oxide, a polymer, or gold.

9. The auto-antigen epitope-MHC biocompatible bioabsorbable nanosphere complex of Claim 7 or 8, wherein said biodegradable, bioabsorbable coating is selected from dextran, mannitol, and poly(ethylene glycol).

10. The use of any of Claims 1-6, or the complex of any of Claims 7-9, wherein said coupling further comprises a linker and wherein the linker is optionally ethylene glycol.

11. The use of Claim 1, wherein the MHC molecule comprises MHC class II molecules.

12. The use of Claim 1 wherein said autoreactive T cells are CD4+ TR1 cells and optionally wherein the CD4+ TR1 cells are characterized by IL-10 and IFNy expression.

13. The use of Claim 1, wherein the antigen-MHC complexes are covalently coupled to the biocompatible bioabsorbable nanosphere, wherein the MHC molecule comprises MHC Class II molecules, and wherein the anti-pathogenic autoreactive T cells are TR1 cells which express IL-10.

14. The use of any of Claims 1-6 and 11-13, or the complex of any of Claims 7-9, wherein the MHC is MHC I or MHC II or a combination thereof and optionally wherein said coupling further comprises a linker.

15. The use of any of Claims 1-6 or 11-13, or the complex of any one of Claims 7-9, wherein said autoimmune disorder or disease is pre-diabetes, diabetes, type I

diabetes, type II diabetes, allergic asthma, multiple sclerosis, primary biliary cirrhosis, neuromyelitis optica, pemphigus vulgaris, irritable bowel disease, Crohn's disease, colitis, rheumatoid arthritis, psoriatic arthritis, systemic lupus erythematosus, Celiac disease, psoriasis, cardiomyopathy, myasthenia gravis, uveitis, ankylosing spondylitis, Grave's disease, inflammatory myopathy, or anti-phospholipid antibody syndrome and optionally wherein said coupling further comprises a linker.

16. The complex of any of Claims 7-9, or the use of any of Claims 11-15, wherein a plurality of auto-antigen epitopes are contained in said antigen-MHC complexes that are derived from a single auto-antigen or a plurality of auto-antigens and optionally wherein said coupling further comprises a linker.

17. The use of Claims 1, 2 or 11 wherein:

a) the autoimmune disease is type I diabetes, the antigen is derived from an antigen selected from the group consisting of PPI, IGRP, GAD, or pro-insulin, and the MHC component comprises all or part of HLA-DR; or

b) the autoimmune disease is multiple sclerosis, the antigen is derived from an antigen selected from the group consisting of MOG, MBP, or PLP, and the MHC component comprises all or part of HLA-DR.

18. The use of any one of Claims 1, 2, 11 or 17, wherein the amount of antigen-MHC complexes per dose is from 0.024 – 121.6 mg.

19. A dosage formulation comprising the composition as defined in any one of Claims 1, 2, 11 or 17, wherein the amount of antigen-MHC complexes per dose is from 0.024 – 121.6 mg.