What is claimed is:

1. A method for preparing etelcalcetide (AMG 416) or a pharmaceutically acceptable salt thereof, the method comprising:

purifying by HPLC a peptide having the structure Ac-D-Cys(SPy)-D-Ala-D-Arg-D-Arg-D-Arg-D-Ala-D-Arg-NH_2 (SEQ ID NO:4) in a solution of TFA;

performing solvent exchange by azeotropic distillation on the purified peptide; and

contacting the purified peptide with L-Cys to produce a conjugated product of formula Ac-c(C)arrrar-NH_2 (SEQ ID NO: 1).

2. The method of claim 1, wherein L-Cys is in a solution of water and IPA.

3. The method of claim 2, further comprising contacting the conjugated product with an aqueous solution comprising IPA and HCl, thereby producing a precipitate comprising AMG 416 HCl.

4. The method of claim 3, further comprising lyophilizing the precipitate.

5. The method of claim 1, wherein the method further comprises deriving the peptide having structure Ac-D-Cys(SPy)-D-Ala-D-Arg-D-Arg-D-Arg-D-Ala-D-Arg-NH2 (SEQ ID NO:4) from a resin-bound peptide having a structure of Ac-D-Cys(Trt)-D-Ala-D-Arg(Pbf)-D-Arg(Pbf)-D-Arg(Pbf)-D-Ala-D-Arg(Pbf)-[Resin] (SEQ ID NO:3).

6. The method of claim 5, wherein the deriving comprises contacting the resin-bound peptide with a solution comprising water, trifluoroacetic acid, triisopropylsilane and dipyridyldisulfide.

7. The method of claim 1, wherein the peptide comprises a TFA salt of Ac-D-Cys(SPy)-D-Ala-D-Arg-D-Arg-D-Arg-D-Ala-D-Arg-NH2 (SEQ ID NO:4).