THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An engineered polypeptide comprising an amino acid sequence with at least 90% sequence identity to a reference sequence of SEQ ID NO:6 and comprising a residue difference at position 82 as compared to SEQ ID NO:6

wherein the polypeptide has imine reductase activity.

2. The engineered polypeptide of Claim 1, wherein the amino acid sequence further comprises at least one residue difference as compared to the reference sequence of SEQ ID NO:6 selected from **X12M, X37P, X111A, X154S, X156N/M, X223S, X256E, X260D, X261H, X262P, X263C/E/Q, X267G, X277L, X281A, X284P/S,** and **X292E**.

3. The engineered polypeptide of Claim 1, wherein the amino acid sequence further comprises at least one residue difference as compared to the reference sequence of SEQ ID NO:6 selected from **X256E, X93G/Y, X94N, X96C, X111A/H, X142A, X159L, X163V, X259R, X273C,** and **X284P/S.**

4. The engineered polypeptide of Claim 1, wherein the amino acid sequence further comprises at least two residue differences as compared to the reference sequence of SEQ ID NO:6 selected from **X141W, X143W, X153Y, X154F/Q/Y, X256V, X259I/L/M/T, X260G, X261R, X265L, X273W, X274M, X277A/I, X279L, X283V, X284L, X296N, X326V**.

5. The engineered polypeptide of Claim 1, wherein the amino acid sequence further comprises at least a combination of residue differences as compared to the reference sequence of SEQ ID NO:6 selected from:

(a) **X153Y,** and **X283V;**

(b) **X141W, X153Y,** and **X283V;**

(c) **X141W, X153Y, X274L/M,** and **X283V;**

(d) **X141W, X153Y, X154F, X274L/M,** and **X283V;**

(e) **X141W, X153Y, X154F,** and **X283V;**

(f) **X141W, X153Y, X283V,** and **X296N/V**;

(g) **X141W, X153Y, X274L/M, X283V,** and **X296N/V**:

(h) **X111A, X153Y, X256E, X274M,** and **X283V;**

(i) **X111A, X141W, X153Y, X273C, X274M, X283V**, and **X284S;**

(j) **X111A, X141W, X153Y, X273C,** and **X283V;**

(k) **X111A, X141W, X153Y, X154F, X256E, X274M, X283V**, **X284S**, and **X296N;**

(l) **X111A, X141W, X153Y, X256E, X273W, X274L, X283V**, **X284S**, and **X296N**;

(m) **X111H, X141W, X153Y, X273W, X274M, X284S**, and **X296N;**

(n) **X111H, X141W, X153Y, X154F, X273W, X274L, X283V**, **X284S**, and **X296N;**

(o) **X141W, X153Y, X256E, X274M,** and **X283V**;

(p) **X111A, X141W, X153Y, X256E, X274M, X283V, M284S,** and **E296V**;

(q) **X94N, X143W, X159L, X163V, X259M,** and **X279L**;

(r) **X141W, X153Y, X154F,** and **X256E;** and

(s) **X153Y, X256E,** and **X274M.**

6. The engineered polypeptide of Claim 5, wherein the amino acid sequence further comprises at least one residue difference as compared to the reference sequence of SEQ ID NO:6 selected from **X12M, X18G, X20V, X26M/V, X27S, X29K, X37P, X57D/L/V, X65I/V, X74W, X87A, X93G/Y, X94N, X96C, X108S, X111A/H, X126S, X138L, X140M, X141M/N, X142A, X143F/L/Y, X153E/F, X154C/D/G/K/L/N/S/T/V, X156H/L/N/M/R, X157F/Q/T/Y, X158I/L/R/S/T/V, X159C/L/Q/V, X163V, X170F/K/R/S, X175R, X177R, X195S, X197V, X200S, X201I, X220C/K/Q, X221F, X223S, X234V/C/L, X241K, X242C/L, X253K/N, X254R, X256A/E/I/L/S/T, X257Q, X259C/R, X260A/D/N/Q/V/Y, X261E/F/H/L/P/Q/Y, X262P, X262F/G/V, X263C/D/E/H/I/K/L/M/N/P/Q/V, X264V, X267E/G/H/I/N/S, X270L, X272D, X273C, X274L/S, X276L, X277H/L, X278E/H/K/N/R/S/W, X279T, X281A, X282A/R, X284C/F/H/P/Q/S, X291E, X292E/P**, **X295F,** and **X352Q.**

7. The engineered polypeptide of Claim 5, wherein the amino acid sequence further comprises at least one residue difference as compared to the reference sequence of SEQ ID NO:6 selected from **X12M, X37P, X111A, X141W, X153Y, X154 F/S, X156N/M, X223S, X256E, X259I, X260D, X261H, X262P, X263C/E/Q, X267G, X274M, X277L, X281A, X283V, X284P/S, X292E,** and **X296N.**

8. The engineered polypeptide of Claim 1, wherein the amino acid sequence comprises the residue differences **X111A, X141W, X153Y, X154F, X256E, X274M, X283V**, **X284S**, and **X296N** and at least residue difference or a combination of residue differences as compared to the reference sequence of SEQ ID NO:6 selected from:

(a) **X37P, X82T**, and **X156N**;

(b) **X37P, X82T, X156N**, and **X259I**; and

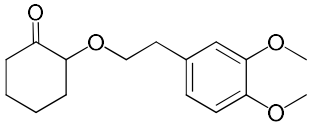
(c) **X82T, X156N, X223S, X259L, X267G**, and **X281A.**

9. The engineered polypeptide of Claim 1, wherein the amino acid sequence does not include a residue difference as compared to the reference sequence of SEQ ID NO:6 at a residue position selected from **X29, X137, X157, X184, X197, X198, X201, X220, X232, X261, X266, X279, X280, X287, X288, X293, X295, X311, X324, X328, X332,** and **X353.**

10. The engineered polypeptide of Claim 1, wherein the amino acid sequence further comprises a residue difference as compared to the reference sequence of SEQ ID NO:6 selected from: **X4H/L/R, X5T, X14P, X20T, X29R/T, X37H, X67A/D, X71C/V, X74R, X94K/R/T, X97P, X100W, X111M/Q/R/S, X124L/N, X136G, X137N, X141W, X143W, X149L, X153E/V/Y, X154F/M/Q/Y, X156G/I/Q/S/T/V, X157D/H/L/M/N/R, X158K, X160N, X163T, X177C/H, X178E, X183C, X184K/Q/R, X185V, X186K/R, X197I/P, X198A/E/H/P/S, X201L, X220D/H, X223T, X226L, X232G/A/R, X243G, X246W, X256V, X258D, X259E/H/I/L/M/S/T/V/W, X260G, X261A/G/I/K/R/S/T, X265G/L/Y, X266T, X270G, X273W, X274M, X277A/I, X279F/L/V/Y, X280L, X283M/V, X284K/L/M/Y, X287S/T, X288G/S, X292C/G/I/P/S/T/V/Y, X293H/I/K/L/N/Q/T/V, X294A/I/V, X295R/S, X296L/N/V/W, X297A, X308F, X311C/T/V, X323C/I/M/T/V, X324L/T, X326V, X328A/G/E, X332V, X353E,** and **X356R.**

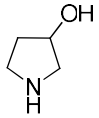
11. The engineered polypeptide of Claim 1, wherein the imine reductase activity comprises converting at least one of the following ketone and amine substrate compound pair to the listed amine product compound under suitable reaction conditions:

(a) ketone substrate compound **(1j)**



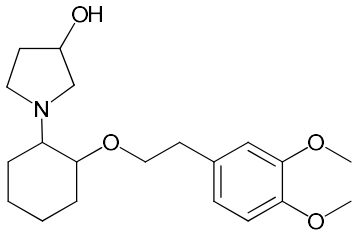
(1j)

and amine substrate compound **(2g)**



(2g)

to amine product compound **(3q)**,



(3q).

12. The engineered polypeptide of Claim 11, wherein the imine reductase activity in converting the ketone and amine substrate compound pair to the listed amine product compound under suitable reaction conditions is increased at least 2-fold as compared to the corresponding activity of the reference polypeptide of SEQ ID NO:6.

13. The engineered polypeptide of Claim 1, in which the amino acid sequence comprises a sequence selected from the group consisting of the even-numbered sequence identifiers of SEQ ID NOS: 22, 26, 34, 112, 182, 188, 192, 194, 198, 200-224, 228, 236, 260, 278, 290, 292, 298, 312, 318, 320, 348, 378-504, 512, 516, 584, 606-710, 722, 734, 756, 760, 762, 764, 772-780, 792, 796, 808, 814, 816, 820, 822, 828, 836-854, 858-862, 876, 880, 882, 886, 888, 890, 892, 894, 902-914, 918-924.