The Claims defining the Invention are as follows:

1. An engineered non-naturally occurring penicillin G acylase capable of removing the A1/B1/B29 tri-phenyl acetate protecting groups from insulin to produce free insulin, wherein said penicillin G acylase comprises SEQ ID NO:12.

2. The engineered penicillin G acylase of Claim 1, wherein said penicillin G acylase is encoded by the polynucleotide sequence set forth in SEQ ID NO:11.