

Representative publications by Alex Tao

1. *Saccharomyces cerevisiae* enzymatic method for preparation of glycoside rebaudioside M **WO 2017000366** A1.
2. Development of a Biocatalytic Process to Prepare (S)-N-Boc-3-hydroxypiperidine, 2014, 18 (6): 827-830.3.
3. Enzymic preparation of rebaudioside M from rebaudioside A and D, **WO2015113231** A1.
4. Enzyme and process development for production of nicotinamide. *Organic Process Research & Development* (2011), 15(1), 291-293.
5. Enzymic preparation of oxidized coenzyme I, **WO 2014146250** A1.
6. Method for preparing monomethyl (R)-3-hydroxyglutarate as rosuvastatin intermediate by enzymolysis with recombinant nitrilase, **WO 2014205917** A1.
7. "Chemoenzymatic Synthesis of Small Molecule Human Therapeutics", *Curr. Pharm. Design*, 2009, 15, 134-152 (invited review).
8. "Biocatalysis: Greening the Pharmaceutical Industry", *Curr. Opin. In Chem. Biol.*, 2009, 13, 43-50 (invited review).
9. "Recent Applications of Biocatalysis in Developing Green Chemistry for Chemical Synthesis at Industrial Scale", *Green Chem.*, 2008, 10, 361-372 (cover story, highlighted for 10th anniversary of Green Chemistry, a top 10 article in 2008).
10. "Strategic Applications of Biotransformations for Synthesis of Chiral Drugs", *Chimica Oggi (Chemistry Today)*, Biocatalysis, 2008, 26 (suppl.), 11-13. 8; "Emerging biocatalysts and their synthetic applications", *Chimica Oggi*, 2008, 26 (suppl.), 14-15.
11. "Development of a Chemoenzymatic Manufacturing Process for Pregabalin", *Org. Process. Res. Dev.*, 2008, ASAP.
12. "Pharmaceutical Manufacturing Goes Green", *Genetic Engineering & Biotechnology News (GEN News)*, Ed. Glaser, V., 2008, 28(5), pp30-34.

13. "Biocatalysis: Green Chemistry, Chemical Development and Drug Manufacture", SP2-Discovery and Development for Life Sciences, 2008, 6, 34-36.
14. "Kinetic Analysis of Teicoplanin Glycosyltransferases and Acyltransferase Reveal Ordered Tailoring of Aglycone Scaffold to Reconstitute Mature Teicoplanin", J. Am. Chem. Soc., 2007, 129, 10082-10083.
15. "Recent Advances in Developing Chemoenzymatic Processes for Active Pharmaceutical Ingredients", Org. Process. Res. Dev., 2007, 11, 259-267 (review) (one of the most highly accessed articles featured in 2007, and also highlighted in "Green Chemistry Highlights Introduction" by US Green Chemistry Institute).
16. "Preparation of Pregabalin and related Compounds", **US8134023**.
17. "Process for Producing Atorvastatin, Pharmaceutically Acceptable Salts Thereof and Intermediates Thereof", **US2005691065** and **WO2006134482**.
18. "Enzymatic Synthesis of Glycosylated Polyketides and Non-ribosomal Peptides", Chimica Oggi/Chemistry Today, 2007, 25(4), 62-64 (review); "New Enzymes for Chemical Synthesis: Exploring Natural Product Biosynthesis", in "Catalysis Applications", Chimica Oggi/Chemistry Today, 25, 44-48, 2007 (review).
19. "Efficient Chemoenzymatic Synthesis of Pelitrexol via Enzymatic Differentiation of a Remote Stereocenter", Org. Lett., 2006, 8, 1653-1655 (special issue).
20. "Efficient and Scalable Enzymatic Process for the Production of (2S)-4,4-Difluoro-3,3-dimethyl-N-Boc-proline, a Key Intermediate in the Synthesis of HIV Protease Inhibitors", Org. Process. Res. Dev., 2006, 10, 650-654 (special issue).
21. "Enzyme at Work", cover story in Chemistry and Engineering News (C&E News), Ed. Thayer, A. M., 2006, 84(33), pp15-25.
22. "Enantioselective Biotransformations for Preparation of Protein Tyrosine Kinase Inhibitor Intermediates", **US2006046287** and **WO 2006021885**.
23. "Enzymatic Process for the Synthesis of Z/E-(2R, 5R)-bicyclo[3.2.0]hept-6-ylidene-acetate: Solvent Effect and NMR Study", Org. Process. Res. Dev., 2006, 10,

655-660.

- 24.** “Applications of Biocatalysis in the Development of Green Chemistry”, *PharmChem*, 2006, 5, 34-36 (review); “An Integrated Approach to Applying Biocatalysis for Chemical Development”, *Chimica Oggi/Chemistry Today*, 2006, 24, 6-7 (review).
- 25.** “Cloning and Optimization of a Nitrilase for the Synthesis of (3S)-3-Cyano-5-methyl Hexanoic Acid”, *J. Mol. Cat. B.*, 2006, 41, 75-80.
- 26.** “A High Throughput Metal Ion Based Method for Nitrilase Screening”, *J. Mol. Cat. B.*, 2006, 39, 156-159 (special issue).
- 27.** “CouO and NovO: C-Methyltransferases for Decoration of the Aminocoumarin Scaffold in Novobiocin and Coumermycin Antibiotic Biosynthesis”, *Biochemistry*, 2005, 44, 14969-14976.
- 28.** “An Efficient and Practical Chemoenzymatic Method for Preparing Optically Active Secondary Amines”, *Org. Lett.*, 2005, 7, 4329-4331.
- 29.** “The Chemistry and Biology of Sphingolipids”, *Tetrahedron* 2005, 61, 4715-4733 (review).
- 30.** “A Chemoenzymatic Synthesis of Ketomethylene Tripeptide Isostere”, *Tetrahedron Asym.* 2005, 16, 699-703.
- 31.** “Tailoring of Glycopeptide Scaffolds by the Acyltransferases from the Teicoplanin and A-40,926 Biosynthesis Operons”, *Chem. & Biol.*, 2005, 12, 131-140.
- 32.** “Characterization of a Regiospecific Epivancosaminy Transferase GtfA and Enzymatic Reconstitution of the Antibiotic Chloroeremomycin”, *Proc. Natl. Acad. Sci. U.S.A. (PNAS)*, 2004, 101, 4390-4395.
- 33.** “Challenges in the Development of an Efficient Enzymatic Process for the Pharmaceutical Industry”, *Tetrahedron Asym.* 2004, 15, 2757-2763 (review, special issue).
- 34.** “Peptidyl Thiophenols as Substrates for Nonribosomal Peptide Cyclases”, *Angew.*

Chem. Int. Ed. Engl., 2004, 43, 493-498.

35. "An Efficient Enzymatic Preparation of Rhinovirus Protease Inhibitor Intermediates", *Tetrahedron*, 2004, 60, 759-764 (special issue).
36. "Chemoenzymatic Route to Macrocyclic Hybrid Peptide/polyketide-like Molecules", *J. Am. Chem. Soc.* 2003, 125, 7160-7161.
37. "Structure-Based Design, Synthesis, and Biological Evaluation of Irreversible Human Rhinovirus 3C Protease Inhibitors. 8. Pharmacological Optimization of Orally Bioavailable 2-Pyridone-Containing Peptidomimetics", *J. Med. Chem.*, 2003, 46, 4572-4585.
38. "Epimerization of L-Cysteinyl to D-Cysteinyl Residue during Thiazoline Ring Formation in Siderophore Chain Elongation by Pyochelin Synthetase from *Pseudomonas aeruginosa*", *Biochemistry*, 2003, 42, 10514-10527.
39. "Synthesis of Proposed Oxidation-Cyclization-Methylation Intermediates of the Coumarin Antibiotic Biosynthetic Pathway", *Org. Lett.*, 2003, 5, 3233-3236.
40. "Automated Enzyme Screening Methods for the Preparation of Enantiopure Pharmaceutical Intermediates", *Adv. Syn.Cat.*, 2003, 345(4), 524-532 (special issue).
41. "Development of a Continuous Enzymatic Process for the Preparation of (R)-3-(4-Fluorophenyl)-2-hydroxypropionic Acid", *Org. Process. Res.Dev.*, 2002, 6(4), 520-524 (special issue).
42. "An Efficient Synthesis of a Key Intermediate for the Preparation of the Rhinovirus Protease Inhibitor AG7088 via Asymmetric Dianionic Cyanomethylation of N-Boc-L-(+)-glutamic Acid Dimethyl Ester", *Tetrahedron Lett.*, 2001, 42, 6807.
43. "Synthesis of Cbz-Protected Ketomethylene Dipeptide Isosteres", chapter in "Peptidomimetics", W. Kazmierski, Ed., Humana Press in the series "Methods in Molecular Medicine", 1999.
44. "Origins of Regio- and Stereoselectivity in Acid-Promoted Reactions of α -Lactams", *J. Org. Chem.*, 1999, 64, 3830-3837.

45. H “A Stereocontrolled Synthesis of Monofluoro Ketomethylene Dipeptide Isosteres”, J. Org. Chem., 1999, 64, 126-132.
46. “A Stereocontrolled Synthesis of Monofluoro Ketomethylene Dipeptide Isosteres”, Tetrahedron Lett., 1998, 39, 4195-4198.
47. “Synthesis of D-erythro-Sphingosine and D-erythro-Sphinganine Via 3-Ketosphinganine”, Tetrahedron Lett., 1998, 39, 3953-3956.
48. “A Synthesis of D-erythro- and L-threo-Sphingosine and Sphinganine Diastereomers Via the Biomimetic Precursor 3-Ketosphinganine “, J. Org.Chem., 1998, 63, 3979-3985.
49. “A Stereocontrolled, Convergent Synthesis of Hydroxyethylene Dipeptide Isosteres”, J. Org. Chem., 1997, 62, 6240-6244.
50. “A Simple, Stereoselective Synthesis of Ketomethylene Dipeptide Isosteres”, Tetrahedron, 1997, 53, 7119-7126.
51. “An Improved Enantiospecific Synthesis of Statine and Statine Analogs via 4-(N,N-dibenzylamino)-3-ketoesters”, J. Org. Chem., 1997, 62, 2292-2297.
52. “A Short, Enantiospecific Synthesis of a Protected Seco Acid Precursor to (R, R)-(-)-Pyrenophorin”, Tetrahedron Lett., 1996,37, 2381-2384.
53. “Preparation of Pregabalin and related Compounds”, **US8044227**.
54. “Enantioselective Biotransformations for Preparation of Protein Tyrosine Kinase Inhibitor Intermediates”, **US7465842**.
55. “Preparation of Pregabalin and related Compounds”, **US7838686**.
56. “Chemoenzymatic methods for preparation of malonic acid and 3-oxopropanoic acid”, **US61/126209**.
57. “Chemoenzymatic methods for preparation of thehydroxymethylfurfural”, **US61/125895**.
58. “Conversion of lignin to high value carboxylic acids”, **US61/079074**.
59. “Transaminase-based Processes for Preparation of Pregabalin”, **WO2008127646**.

- 60.** “Chemoenzymatic Methods for Preparation of Statins” **US61/125,245**.
- 61.** Purified Lignin and Processes of Recovering the Same” **US61/023,807**,
61/041,539.
- 63.** “Methods for the Preparation of Stereoisomerically Enriched Amines”,
US2005192441 and **WO2005054186**.
- 64.** H “An Efficient Microbial Preparation of Capravirine Metabolites M4 and M5”,
US 20050043363 and **WO2005016912**.
- 65.** “An Efficient Method for the Production of Enantiopure Pregabalin”, **US**
2005283023 and **WO2006000904**.
- 66.** “Efficient Synthetic Routes for the Preparation of Rhinovirus Protease Inhibitors
and Key Intermediates”, **US2002133020**.
- 67.** “Process for Preparation of Amidopentenoate Peptide Analog Rhinovirus Protease
Inhibitors “, **US2003064429** and **WO2001014576**.
- 68.** “Synthetic Routes for the Preparation of Rhinovirus Protease Inhibitors and Key
Intermediates”, **WO2001014329**.