

# Ang Li, Ph.D.

Professor

State Key Laboratory of Bioorganic and Natural Products Chemistry  
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## Research Area

Organic synthesis: total synthesis of structurally and biologically interesting natural products

## Teaching

Reactions in organic synthesis

## Professional Experience

- 2010– Professor, State Key Laboratory of Bioorganic and Natural Products Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China.
- 2010 Research fellow, Institute of Chemical and Engineering Sciences, Singapore.  
Advisor: Prof. K. C. Nicolaou.

## Education

- 2004–2009 Ph.D., The Scripps Research Institute, California, USA  
Advisor: Prof. K. C. Nicolaou
- 2000–2004 B.Sc., Peking University, Beijing, China  
Advisor: Prof. Zhen Yang

## Honors and Awards

- 2019 KAIST BK21 Lectureship Award
- 2017 Asian International Symposium Distinguished Lectureship Award, Chemical Society of Japan
- 2017 Tetrahedron Young Investigator Award for Organic Synthesis
- 2016 CAPA Distinguished Faculty Award
- 2016 ChemComm Emerging Investigator Lectureship
- 2015 The National Science Fund for Distinguished Young Scholars
- 2015 WuXi PharmaTech Life Science and Chemistry Award
- 2015 Roche Chinese Young Investigators Award
- 2013 Asian Core Program Lectureship Award
- 2013 Chinese Chemical Society Wei-Shan Award for Synthetic Chemistry
- 2013 China Pharmaceutical Association–Servier Youth Medicinal Chemist Award
- 2013 Thieme Chemistry Journal Award
- 2012 Asian Core Program Lectureship Award

2009	Eli Lilly Graduate Fellowship
2007	Chinese Government Award for Outstanding Graduate Students Abroad
2007	Bristol-Myers Squibb Graduate Fellowship in Organic Synthesis

### Professional Activities

2019–	Associated Editor, Synlett
2017–2018	Editorial Board, Organic and Biomolecular Chemistry
2017–	Editorial Board, Science China Chemistry
2017–	Advisory Board, Asian Journal of Organic Chemistry
2017–	Advisory Board, Tetrahedron/Tetrahedron Letters
2016–	Advisory Board, Organic Chemistry Frontiers
2016–	Editorial Board, Chinese Chemical Letters
2016–	The 11th Academic Committee of Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences
2015–	Associate Director, State Key Laboratory of Bioorganic and Natural Products Chemistry

### Publications

- G. Lan, J. Zhang, W. Ye, F. Yang, **A. Li**,\* W. He,\* W.-D. Zhang,\* Studies of the biological events in the development of metabolic diseases using celastrol as a tool, *Sci. China Chem.* in press.
- S. R. Hare, **A. Li**, D. J. Tantillo,\* Post-transition state bifurcations induce dynamical detours in Pummerer-like reactions, *Chem. Sci.* doi: 10.1039/c8sc02653j.
- W. Ye, **A. Li**,\* A practical route to 3D molecular diversity, *Nature* **2018**, *560*, 314–316.
- Z. Lu, X. Zhang, Z. Guo, Y. Chen, T. Mu, **A. Li**,\* Total synthesis of aplysiasecosterol A, *J. Am. Chem. Soc.* **2018**, *140*, 9211–9218.
- S. Zhou, R. Guo, P. Yang, **A. Li**,\* Total synthesis of septedine and 7-deoxyseptedine, *J. Am. Chem. Soc.* **2018**, *140*, 9025–9029.
- Y. Chen, L. Liu, D. Wu, Y.-P. He,\* **A. Li**,\* A one-pot protocol for copper-mediated azide–alkyne cycloaddition using alkenyl triflate precursors, *Chin. Chem. Lett.* doi: 10.1016/j.ccllet.2018.06.001.
- W. Zhang, M. Ding, J. Li, Z. Guo, M. Lu, Y. Chen, L. Liu, Y.-H. Shen, **A. Li**,\* Total synthesis of hybridaphniphylline B, *J. Am. Chem. Soc.* **2018**, *140*, 4227–4231.
- Y. Chen, W. Zhang, L. Ren, J. Li, **A. Li**,\* Total syntheses of daphenylline, daphnipaxianine A, and himalenine D, *Angew. Chem. Int. Ed.* **2018**, *57*, 952–956.
- J. Li, W. Zhang, F. Zhang, Y. Chen, **A. Li**,\* Total synthesis of daphniyunnine C (longeracinphyllin A), *J. Am. Chem. Soc.* **2017**, *139*, 14893–14896.
- Y. Li, J. Li, H. Ding,\* **A. Li**,\* Recent advances on the total synthesis of alkaloids in mainland China, *National Science Review* **2017**, *4*, 397–425.
- Q. Zhang, H. Li, L. Yu, Y. Sun, Y. Zhu, H. Zhu, L. Zhang, S.-M. Li, Y. Shen, C. Tian, **A. Li**, H.-w. Liu,\* C. Zhang,\* Characterization of the flavoenzyme XiaK as an *N*-hydroxylase and implications in indolosesquiterpene diversification, *Chem. Sci.* **2017**, *8*, 5067–5077.
- Z. Zhang, J. Wang, J. Li, F. Yang, G. Liu, W. Tang, W. He, J.-J. Fu, Y.-H. Shen,\* **A. Li**,\* W.-D. Zhang,\* Total synthesis and stereochemical assignment of delavatine A: Rh-catalyzed asymmetric hydrogenation of indene-type tetrasubstituted olefins and kinetic resolution through Pd-catalyzed triflamide-directed C–H olefination, *J. Am. Chem. Soc.* **2017**, *139*, 5558–5567.
- W. Zhang, **A. Li**,\* A radical step forward, *Nature Chemistry* **2017**, *9*, 198–199.
- H. Li, Q. Chen, Z. Lu, **A. Li**,\* Total syntheses of aflavazole and 14-hydroxyaflavinine, *J. Am. Chem. Soc.* **2016**, *138*, 15555–15558.
- Q.-Y. Zheng,\* **A. Li**,\* The bloom of natural product chemistry in China, *Sci. China Chem.* **2016**, *59*, 1059–1060.

16. J. Pei, S. Zhou, F. Yang, Y. Sun, **A. Li**,\* W.-D. Zhang,\* W. He,\* Identification and mechanistic studies of a cell cycle regulator JP18 from a library of synthetic indole terpenoid mimics, *Chem. Asian J.* **2016**, *11*, 2715–2718.
17. P. Yang, M. Yao, J. Li, Y. Li, **A. Li**,\* Total synthesis of rubriflordilactone B, *Angew. Chem. Int. Ed.* **2016**, *55*, 6964–6968.
18. Y. Li, S. Zhu, J. Li, **A. Li**,\* Asymmetric total syntheses of aspidodasycarpine, lonicerine, and the proposed structure of lanciferine, *J. Am. Chem. Soc.* **2016**, *138*, 3982–3985.
19. X. Yang, D. Wu, Z. Lu, H. Sun,\* **A. Li**,\* A mild preparation of alkynes from alkenyl triflates, *Org. Biomol. Chem.* **2016**, *14*, 5591–5594.
20. Y. Sun, Z. Meng, P. Chen, D. Zhang, M. Baunach, C. Hertweck, **A. Li**,\* A concise total synthesis of sespenine, a structurally unusual indole terpenoid from *Streptomyces*, *Org. Chem. Front.* **2016**, *3*, 368–374.
21. M. Yang, X. Yang, H. Sun, **A. Li**,\* Total synthesis of ileabethoxazole, pseudopteroxazole, and *seco*-pseudopteroxazole, *Angew. Chem. Int. Ed.* **2016**, *55*, 2851–2855.
22. Z. Lu, H. Li, M. Bian, **A. Li**,\* Total synthesis of epoxyeujindole A, *J. Am. Chem. Soc.* **2015**, *137*, 13764–13767.
23. S. Zhou, H. Chen, Y. Luo, W. Zhang, **A. Li**,\* Asymmetric total synthesis of mycoleptodiscin A, *Angew. Chem. Int. Ed.* **2015**, *54*, 6878–6882.
24. X. Xiong, D. Zhang, J. Li, Y. Sun, S. Zhou, M. Yang, H. Shao,\* **A. Li**,\* Synthesis of indole terpenoid mimics via a functionality-tolerated Eu(fod)<sub>3</sub>-catalyzed conjugate addition, *Chem. Asian J.* **2015**, *10*, 869–872.
25. M. Isobe,\* A. Nishida,\* Y.-M. Choo, N. A. Rahman,\* P. Ploypradith, S. Ruchirawat,\* G.-Q. Lin, **A. Li**,\* Z.-J. Yao,\* B.-J. Uang,\* C.-C. Liao, P. Chiu,\* B. M. Kim,\* T. P. Loh,\* The last and next decades of the Asian Core Program on Cutting-Edge Organic Chemistry in Asia, *Chem. Asian J.* **2015**, *10*, 790–804.
26. M. Wan, M. Yao, J. Gong, P. Yang, H. Liu,\* **A. Li**,\* Synthesis of the tetracyclic core of chlorospermines, *Chin. Chem. Lett.* **2015**, *26*, 272–276.
27. M. Yang, J. Li, **A. Li**,\* Total synthesis of clostrubin, *Nature Communications* **2015**, *6*, 6445.
28. Z. Meng, H. Yu, L. Li, W. Tao, H. Chen, M. Wan, D. J. Edmonds, J. Zhong, **A. Li**,\* Total synthesis and antiviral activity of indolosesquiterpenoids from the xiamycin and oridamycin families, *Nature Communications* **2015**, *6*, 6096.
29. H. Li, Y. Sun, Q. Zhang, Y. Zhu, S.-M. Li, **A. Li**, C. Zhang,\* Elucidating the cyclization cascades in xiamycin biosynthesis by substrate synthesis and enzyme characterizations, *Org. Lett.* **2015**, *17*, 306–309.
30. J. Li, P. Yang, M. Yao, J. Deng, **A. Li**,\* Total synthesis of rubriflordilactone A, *J. Am. Chem. Soc.* **2014**, *136*, 16477–16480.
31. Z. Lu, M. Yang, P. Chen, X. Xiong, **A. Li**,\* Total synthesis of hapalindole-type natural products, *Angew. Chem. Int. Ed.* **2014**, *53*, 13840–13844.
32. S. Zhou, D. Zhang, Y. Sun, R. Li, W. Zhang, **A. Li**,\* Intermolecular conjugate addition of pyrroloindoline and furoindoline radicals to  $\alpha,\beta$ -unsaturated enones *via* photoredox catalysis, *Adv. Synth. Catal.* **2014**, *356*, 2867–2872.
33. Y. Sun, P. Chen, D. Zhang, M. Baunach, C. Hertweck, **A. Li**,\* Bioinspired total synthesis of sespenine, *Angew. Chem. Int. Ed.* **2014**, *53*, 9012–9016.
34. J. Deng, S. Zhou, W. Zhang, J. Li, R. Li, **A. Li**,\* Total synthesis of taiwaniadducts B, C, and D, *J. Am. Chem. Soc.* **2014**, *136*, 8185–8188.
35. C. Wan, J. Deng, H. Liu,\* M. Bian,\* **A. Li**,\* Recent advances of intermolecular Diels–Alder reaction in bio-inspired synthesis of natural products, *Sci. China Chem.* **2014**, *57*, 926–929.
36. X. Xiong, Y. Li, Z. Lu, M. Wan, S. Wu, H. Shao,\* **A. Li**,\* Synthesis of the 6,6,5,7-tetracyclic core of daphnilongeranin B, *Chem. Commun.* **2014**, *50*, 5294–5297.

37. H. Yu, C. Wan, J. Han,\* **A. Li,\*** A protocol for  $\alpha$ -bromination of  $\beta$ -substituted enones, *Acta Chim. Sinica* **2013**, *71*, 1488.
38. Y. Sun, R. Li, W. Zhang, **A. Li,\*** Total synthesis of indotertine A and drimentines A, F, and G, *Angew. Chem. Int. Ed.* **2013**, *52*, 9201–9204.
39. Z. Lu, Y. Li, J. Deng, **A. Li,\*** Total synthesis of the *Daphniphyllum* alkaloid daphenylline, *Nature Chemistry* **2013**, *5*, 679–684.
40. J. Deng, R. Li, Y. Luo, J. Li, S. Zhou, Y. Li, J. Hu, **A. Li,\*** Divergent total synthesis of taiwaniaquinones A and F and taiwaniaquinols B and D, *Org. Lett.* **2013**, *15*, 2022–2025.
41. S. Li, J. Han,\* **A. Li,\*** Interrupted fisher indole synthesis and its applications to alkaloid synthesis, *Acta Chim. Sinica* **2013**, *73*, 295–298.
42. M. Bian, Z. Wang, X. Xiong, Y. Sun, C. Matera, K. C. Nicolaou,\* **A. Li,\*** Total syntheses of anominine and tubingensin A, *J. Am. Chem. Soc.* **2012**, *134*, 8078–8081.
43. J. Deng, B. Zhu, Z. Lu, H. Yu, **A. Li,\*** Total synthesis of (–)-fusarisetin A and reassignment of the absolute configuration of its natural counterpart, *J. Am. Chem. Soc.* **2012**, *134*, 920–923.
44. C.-C. Tseng, H. Ding, **A. Li**, Y. Guan, D. Y.-K. Chen, A modular synthesis of salvileucalin B structural domains, *Org. Lett.* **2011**, *13*, 4410–4413.
45. K. C. Nicolaou, **A. Li**, D. J. Edmonds, G. S. Tria, S. P. Ellery, Total syntheses of platensimycin and related natural products, *J. Am. Chem. Soc.* **2009**, *131*, 16905–16918.
46. K. C. Nicolaou, **A. Li**, S. P. Ellery, D. J. Edmonds, Rhodium-catalyzed asymmetric enyne cycloisomerization of terminal alkynes and formal total synthesis of (–)-platensimycin, *Angew. Chem. Int. Ed.* **2009**, *48*, 6293–6295.
47. K. C. Nicolaou, A. F. Stepan, T. Lister, **A. Li**, A. Montero, G. S. Tria, C. I. Turner, Y. Tang, J. Wang, R. M. Denton, D. J. Edmonds, Design, synthesis and biological evaluation of platensimycin analogs with varying degrees of molecular complexity, *J. Am. Chem. Soc.* **2008**, 13110–13119.
48. K. C. Nicolaou, **A. Li**, Total syntheses and structural revision of  $\alpha$ - and  $\beta$ -diversonolic esters and total syntheses of diversonol and blennolide C, *Angew. Chem. Int. Ed.* **2008**, *47*, 6579–6582.
49. K. C. Nicolaou, Y. Tang, J. Wang, A. F. Stepan, **A. Li**, A. Montero, Total synthesis and antibacterial properties of carbaplatensimycin, *J. Am. Chem. Soc.* **2007**, *129*, 14850–14851.
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51. K. C. Nicolaou, **A. Li**, D. J. Edmonds, Total synthesis of platensimycin, *Angew. Chem. Int. Ed.* **2006**, *45*, 7086–7090.
52. K. C. Nicolaou, R. M. Denton, A. Lenzen, D. J. Edmonds, **A. Li**, R. M. Milburn, S. T. Harrison, Stereocontrolled synthesis of model core systems of lomaiviticins A and B, *Angew. Chem. Int. Ed.* **2006**, *45*, 2076–2081.
53. B. Liang, J. Liu, Y.-X. Gao, K. Wongkhan, D.-X. Shu, Y. Lan, **A. Li**, A. S. Batsanov, J. A. H. Howard, T. B. Marder, J.-H. Chen, Z. Yang, Synthesis of thiourea-oxazolines, a new class of chiral *S,N*-heterobidentate ligands: application in Pd-catalyzed asymmetric bis(methoxycarbonylation) of terminal olefins, *Organometallics* **2007**, *26*, 4756–4762.
54. Z. Xiong, N. Wang, M. Dai, **A. Li**, J. Chen, Z. Yang, Synthesis of novel palladacycles and their application in Heck and Suzuki reactions under aerobic conditions, *Org. Lett.* **2004**, *6*, 3337–3340.
55. Y. Zhang, **A. Li**, Z. Yan, G. Xu, C. Liao, C. Yan, (ZrO<sub>2</sub>)<sub>0.85</sub>(REO<sub>1.5</sub>)<sub>0.15</sub> (RE = Sc, Y) solid solutions prepared via three Pechini-type gel routes: 1. gel formation and calcination behaviors, *Journal of Solid State Chemistry* **2003**, *171*, 434–438.
56. Y. Zhang, **A. Li**, Z. Yan, G. Xu, C. Liao, C. Yan, (ZrO<sub>2</sub>)<sub>0.85</sub>(REO<sub>1.5</sub>)<sub>0.15</sub> (RE=Sc, Y) solid solutions prepared via three Pechini-type gel routes: 2-sintering and electrical properties, *Journal of Solid State Chemistry* **2003**, *171*, 439–443.
57. Y. Zhang, **A. Li**, Z. Yan, C. Liao, C. Yan, Calcination time effects on the particle size, specific surface area and morphology of rare earth oxides (III), *Journal of the Chinese Rare Earth Society (Chinese*

*Edition*) **2002**, *20*, 170–172.

58. Y. Zhang, Z. Yan, A. Li, X. Jiang, L. Gu, C. Liao, C. Yan, Effects of precipitation conditions on specific surface area and morphology of rare earth oxides (II), *Journal of the Chinese Rare Earth Society (Chinese Edition)* **2001**, *19*, 471–473.

### **Selected Presentations**

1. Chemistry Department seminar, Yale University, USA, May 16, 2019.
2. The 2nd KAIST BK21 Symposium, KAIST, Korea, February 18, 2019.
3. The 15th International Symposium for Chinese Organic Chemists, Plenary Lecture, Taipei, October 26–29, 2018.
4. The 33rd Annual W.S. Johnson Symposium in Organic Chemistry, Stanford University, USA, October 12, 2018.
5. Merck Symposium in Organic Chemistry, Boston College, USA, October 5, 2018.
6. The 24th Conference on Isoprenoids, Plenary Lecture, Bialystok, Poland, September 9–12, 2018.
7. Gordon Research Conference on Stereochemistry, Salve Regina College, Rhode Island, July 22–27, 2018.
8. Organic Syntheses Symposium, Massachusetts Institute of Technology, USA, May 10, 2018.
9. The 53rd Swiss Chemical Society Conference on Stereochemistry (Bürgenstock Conference), Brunnen, Switzerland, April 29–May 3, 2018.
10. Gordon Research Conference on Natural Products & Bioactive Compounds, Proctor Academy, New Hampshire, USA, July 30–Aug 4, 2017.
11. The 25th International Symposium: Synthesis in Organic Chemistry, University of Oxford, UK, July 17–20, 2017.
12. The 18th Tetrahedron Symposium, Award Lecture, Budapest, Hungary, June 27–30, 2017.
13. Organic/Green Chemistry Joint Symposium, The 97<sup>th</sup> Annual Meeting of The Chemical Society of Japan, Keio University, Japan, March 18, 2017.
14. Bristol-Myers Squibb Lecture, University of California, Irvine, USA, February 22, 2017.
15. The 26th Symposium on Optically Active Compounds, Tokyo, Japan, November 25, 2016.
16. The 15th Tateshina Conference on Organic Chemistry, Chino, Japan, November 6–8, 2015.
17. The 5th Pharmaron Symposium, Beijing, September 12, 2015.
18. The 2nd International Symposium on Natural Product Synthesis and Process Methods for Drug Manufacture, Plenary Lecture, Nanjing, September 21–24, 2014.
19. New Horizons in Natural Products Chemistry, Syngenta Lecture, University of Nottingham, UK, November 7, 2012.