Vitaly Kovalenko

Nationality: Belarus
Date of birth: March 15, 1984
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EDUCATION

2006 Graduated from the Belarusian State University, Department of Chemistry, Minsk
2007 M.Sc. in Chemistry, Belarusian State University
2011 Received PhD in organic chemistry. Supervisor: Prof. Oleg Kulinkovich, co-discoverer of the *Kulinkovich reaction:* en.wikipedia.org/wiki/Kulinkovich_reaction

PROFESSIONAL EXPERIENCE

2010-2016 Junior Researcher, Researcher, Senior Researcher, Laboratory of Element organic synthesis, Department of Chemistry, Belarusian State University
2017- Leading Researcher (adjunct), Laboratory of Radiochemistry, Department of Chemistry, Belarusian State University
2016- *Research Scientist,* Department of Natural Sciences, Maxim Tank Belarusian State Educational University

INTERNSHIPS

2016 Syncom BV and Institute AMOLF, The Netherlands, invited by Prof Richard M. Kellogg* and Dr Wim Noorduin*
2018 Indian Institute of Technology Bombay, Mumbai, Prof Debabrata Maiti*
2019 Hanyang University, Seoul, Prof Cheon-Gyu Cho*

Professional skills

• Experience in the designing and execution of multi-step synthesis; optimization and scale-up; analysis and identification of organic compounds by NMR, IR, MS
• Highly skilled in the separation and purification by traditional lab techniques (crystallization, vacuum distillation); GC-MS and HPLC user

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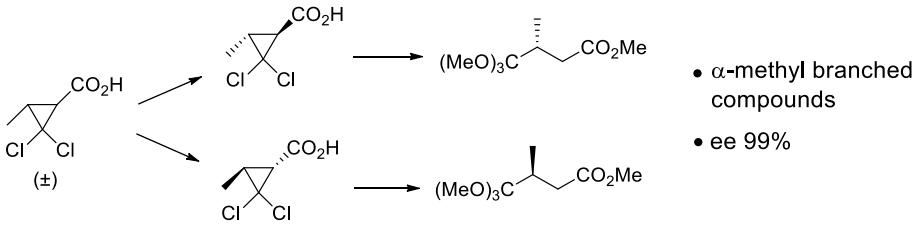
*** Potential references**

Research overview

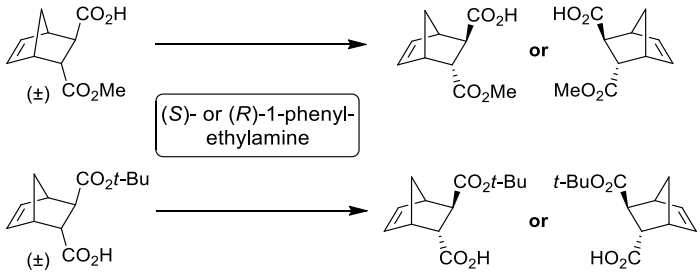
Research work lies substantially in synthetic organic chemistry with a special focus on the separation of enantiomers by crystallization. This approach enables us to develop original chiral building blocks and scalable synthetic procedures for optically active natural products, mostly insect pheromones. Some of them have been in great demand by domestic forestry.

Selected papers: Enantiomer resolution by crystallization

1. V.N. Kovalenko, O.G. Kulinkovich. The resolution of *trans*-2,2-dichloro-3-methylcyclopropanecarboxylic acid via crystallization of its salts with (+)- and (–)-α-phenylethylamine, and the transformation of the resulting enantiomers into (*R*)- and (*S*)-dimethyl 2-methylsuccinates. *Tetrahedron: Asymmetry* **2011**, *22*, 26–30. http://dx.doi.org/10.1016/j.tetasy.2010.12.014

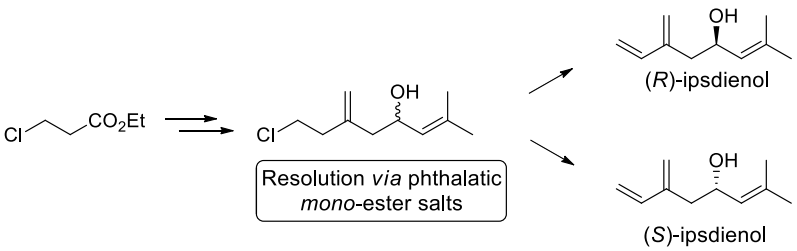


2. V.N. Kovalenko,* Yu.Yu. Kozyrkov. A simple method for resolution of *endo*-/*exo*-monoesters of *trans*-norborn-5-ene-2,3-dicarboxylic acids into their enantiomers. *Chirality* **2015**, *27*, 151–155. http://dx.doi.org/10.1002/chir.22404

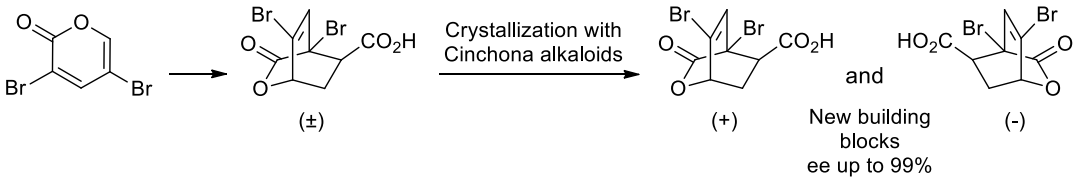


3. V.N. Kovalenko,* K.N. Pokchorevich. Improved synthesis of optically active ipsdienol. *Russ. J. Org. Chem.* **2016**, *52*, 757–758. http://dx.doi.org/10.1134/S1070428016050250

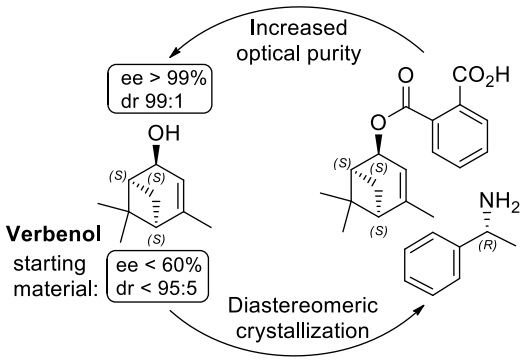
4. V.N. Kovalenko, E.A. Matiushenkov. Stereoselective synthesis of (*R*)- and (*S*)-ipsdienols, pheromone components of bark beetles of the *Ips* family. *Russ. J. Org. Chem.* **2012**, *48*, 1168–1172. http://dx.doi.org/10.1134/S1070428012090035



5. T.-H. Jeon, H.-J. Kang, A. Svirid, A. Lyakhov, **V. Kovalenko**,* C.-G. Cho.* Chiral resolution of racemic 2-pyrone Diels-Alder cycloadduct by diastereomeric salt formation. *Bull. Korean Chem. Soc.* **2019**, *40*, 910–913. https://doi.org/10.1002/bkcs.11838

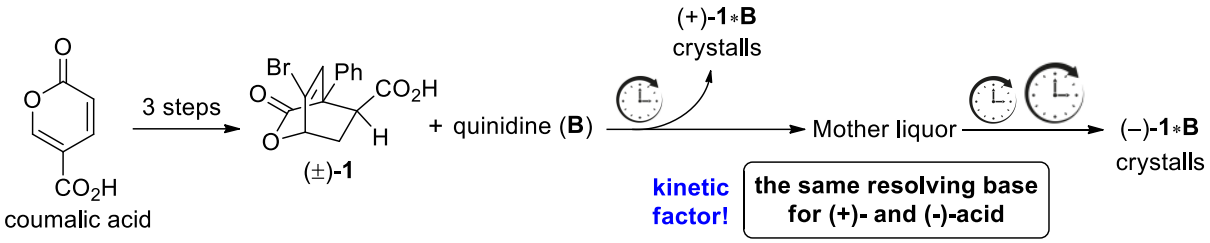


6. V. Kovalenko,* A. Krauchanka, K. Prokhorevich. Practical method for increasing optical purity of *cis*-verbenol. *Chirality* **2019**, *31*, 865–869. https://doi.org/10.1002/chir.23119



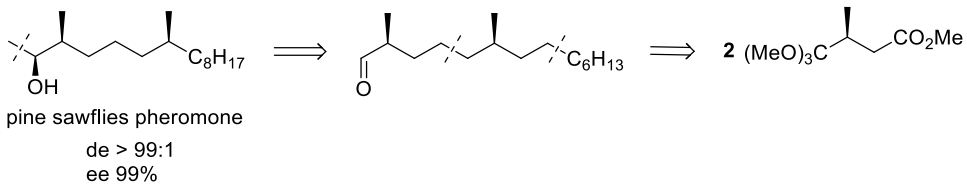
Unpublished

V. Kovalenko. Crystallization of diastereomeric salts: kinetics *vs* thermodynamics. Virtual meeting "Crystal Engineering: From Molecule to Crystal [CEFMC-2020]", June **2020**. https://twitter.com/org_chemist/status/1273148832998739968

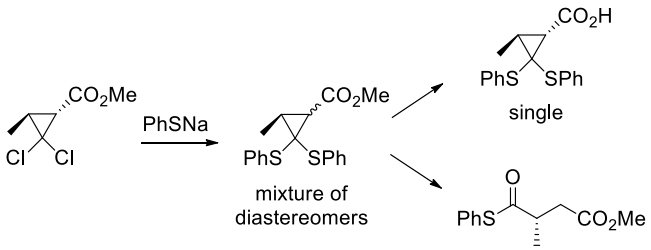


Synthesis associated with crystallization

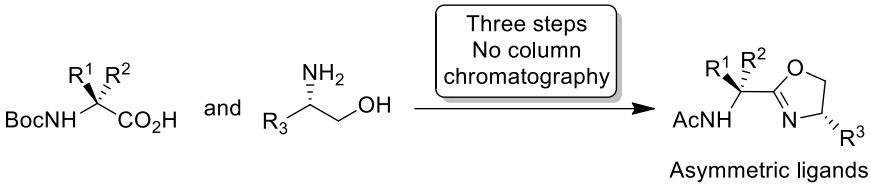
8. V. Kovalenko,* E. Matiushenkov. Stereoselective synthesis of (2*S*,3*S*,7*S*)-3,7-dimethylpentadecan-2-ol and its propionate, the sex pheromones of pine sawflies. *Tetrahedron: Asymmetry* **2012**, *23*, 1393–1399. http://dx.doi.org/10.1016/j.tetasy.2012.09.002



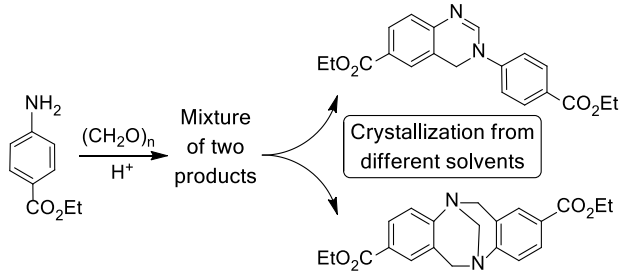
9. V.N. Kovalenko. Chiral methyl *trans*-2,2-dichloro-3-methylcyclopropanecarboxylate upon exposure to thiophenolate nucleophile. *Arkivoc* **2014** (iii), 80–89. http://dx.doi.org/10.3998/ark.5550190.p008.380



10. V. Kovalenko,* K. Vasiutovich. Scalable synthesis of *N*-acetylated α-amino acid derived oxazoline ligands. *J. Heterocyclic Chem.* **2019**, *56*, 909–914. https://doi.org/10.1002/jhet.3468

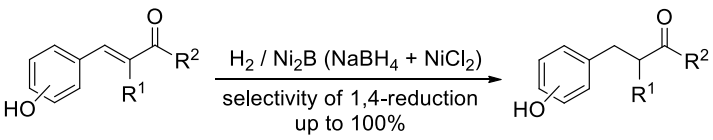


11. V. Kovalenko,* N. Tumanov, K. Vasiutovich, T. Leyssens. Ethoxycarbonyl functionalized Tröger's base alongside its congener dihydroquinazoline: a trick with crystallization. *Chemical Data Collections* **2020**, *25*, 100339, https://doi.org/10.1016/j.cdc.2020.100339



Synthetic papers

1a. M. Bandarenko, V. Kovalenko.* Synthesis of raspberry and ginger ketones by nickel boride-catalyzed hydrogenation of 4-arylbut-3-en-2-ones. *Zeitschrift für Naturforschung B* **2014**, *69b*, 885–888, http://dx.doi.org/10.5560/ZNB.2014-4118; **1b.** V.N. Kovalenko,* A.S. Pratsko. Selective hydrogenation of conjugated unsaturated ketones containing a hydroxyaryl substituent in the β-position. *Russ. J. Org. Chem.* **2017**, *53*, 24–28, http://dx.doi.org/10.1134/S1070428017010055



2. V.N. Kovalenko, N.V. Masalov, O.G. Kulinkovich. Synthesis of (+)-disparlure from diethyl (−)-malate via opening and fragmentation of the three-membered ring in tertiary cyclopropanols. *Russ. J. Org. Chem.* **2009**, *45*, 1318–1324. https://doi.org/10.1134/S1070428009090036

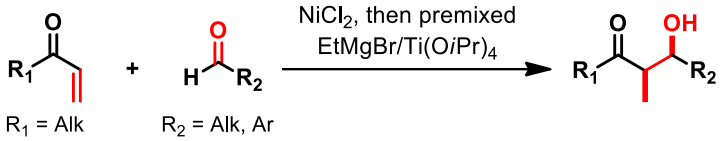
3. V.N. Kovalenko, N.A. Sokolov, O.G. Kulinkovich. Synthesis of epothilones molecule fragment (15*R*)-C*13*-C*21* from D-mannitol. *Russ. J. Org. Chem.* **2010**, *46*, 1702–1708. https://doi.org/10.1134/S1070428010110175

4. I.V. Mineeva, V.S. Masyuk, **V.N. Kovalenko**, M.M. Bandarenko. (4*S*,6*R*)-4-methyl-6-pentyltetrahydro-2H-pyran-2-one as an efficient intermediate in the preparation of chiral building blocks with methyl-branched carbon skeleton. Application to the synthesis of bioactive compounds. *Russ. J. Org. Chem.* **2014**, *50*, 1621–1627. https://doi.org/10.1134/S1070428014110141

5. V.N. Kovalenko, I.V. Mineeva. Cyclopropane intermediates in the synthesis of chiral alcohols with methyl-branched carbon skeleton. Application in the synthesis of insect pheromones. *Russ. J. Org. Chem.* **2014**, *50*, 934–942. https://doi.org/10.1134/S1070428014070033

Unpublished

V. Kovalenko. A new protocol for reductive aldol coupling between vinyl ketones and aldehydes. *GDCh 150: "Wissenschaftsforum Chemie"*, September **2017**, Berlin.



INDUSTRY EXPERIENCE

Launching *Cationic starch wet process* for "Green Chemicals" LLC, Minsk

Generic perfume products for "Art Parfum" LLC, Minsk