

PRABHAT ARYA (b June 18, 1958, India; grew up in Delhi)

Distinguished Research Professor in Chemistry and Chemical Biology

Dr. Reddy's Institute of Life Sciences (DRILS)

University of Hyderabad Campus

Gachibowli, Hyderabad 500046, India

E mail: prabhata@drils.org

The Arya Group: www.prabhatarya.org

Education

- 1974-77 B.Sc. (Hons), Delhi University, India
- 1978-80 M.Sc., Delhi University, India
- 1980-81 M.Phil., Delhi University, India
- 1981-85 Ph.D. (Synthetic Organic Chemistry), Delhi University, India

Awards and Honors

- 1985 Research Associate, CSIR-National Chemical Laboratory, Pune, India
- 1985-86 Maître de Conférence, Institut de Chimie Moléculaire, Montpellier, France
- 1986-87 Post-doctoral Fellow, Cambridge University, UK
- 1987-89 Post-doctoral Fellow, McGill University, Canada
- 1989-92 Research Associate, National Research Council of Canada, Canada
- 1994 NRC Vice President Collaborative Funds Award- with Drs. G. W. Burton, M. B. Perry and J. C. Richards
- 1997 Steacie Institute for Molecular Sciences (SIMS), National Research Council of Canada, Outstanding Achievement Award
- 2002 Dept of Atomic Energy Science Chair, School of Chem, Univ Hyderabad, India
- 2003 SIMS, NRC Award- Bringing SIMS into a Significant Partnership
- 2002-03 Secretary, Organic Division, Canadian Society of Chemistry (CSC)
- 2003-04 Vice Chair, Organic Division, Canadian Society of Chemistry (CSC)
- 2004-05 Chair, Organic Division, Canadian Society of Chemistry (CSC)
- 2009-12 Professorship at the Institute of Life Sciences (ILS), Hyderabad
- 2012-16 Professorship at the Dept of Organic and Medicinal Chemistry, DRILS Hyderabad
- 2013 Head, Dept of Organic and Medicinal Chemistry, DRILS Hyderabad
- 2016 Distinguished Research Professor, Chemistry and Chemical Biology, DRILS Hyderabad

Academic and Research Employment

- 1985 Research Associate, National Chemical Laboratory, Pune, India
Supervisor: Dr. A. V. Rama Rao
- 1985-86 Maître de Conférence, Institut de Chimie Moléculaire, Montpellier, France
Supervisor: Professor Robert J. P. Corriu
- 1986-87 Post-doctoral Fellow, Department of Chemistry, Cambridge University, UK
Supervisor: Professor Ian Paterson, FRS
- 1987-89 Post-doctoral Fellow, Department of Chemistry, McGill University
Supervisor: Professor Tak-Hang (Bill) Chan
- 1989-92 Research Associate, Chemistry Division, NRC
- 1992-93 Assistant Research Officer (term), SIMS, NRC
- 1993-95 Associate Research Officer (term), SIMS, NRC
- 1994-95 Sessional Academic Staff, Department of Chemistry, University of Ottawa
- 1996-98 Associate Research Officer, Chemical Biology Program, SIMS, NRC
- 1997 Sessional Academic Staff, Department of Chemistry, University of Ottawa
- 1996-05 Project Leader, Organic & Bioorganic Synthesis, Chemical Biology, SIMS, NRC
- 1999-05 Senior Research Officer, Chemical Biology Program, SIMS, NRC
- 1999-05 Adjunct Professor, Department of Chemistry, University of Ottawa
- 1999-05 Adjunct Professor, Ottawa-Carleton Chemistry Institute, Ottawa
- 2001-11 Adjunct Professor, Department of Biochemistry, McGill University, Montreal
- 2005-07 Senior Research Officer, Molecular and Nanomaterial Architectures, SIMS, NRC
- 2005-11 Member, Ottawa Institute of Systems Biology, University of Ottawa
- 2006-09 Adjunct Professor, Department of Chemistry, Queen's University

2006-11 Adjunct Professor, Dept of Biochemistry, Microbiology and Immunology, Univ of Ottawa
2007-11 Affiliate Investigator, Ottawa Health Research Institute, Ottawa
2007-09 Visiting Scientist, Ontario Institute for Cancer Research (OICR), Toronto/Ottawa
2009- Professor and Leader, Chemical Biology Program, Institute of Life Sciences (ILS), University of Hyderabad Campus, India
2009-11 Dean, Academic Affairs, Institute of Life Sciences (ILS), Hyderabad
2011- Founder and President, SignMod Pharmaceuticals Pvt. Ltd. Hyderabad (a spin off from the Arya Research Program)
2012-16 Professor, Dr. Reddy's Institute of Life Sciences (DRILS), Univ of Hyderabad Campus, Hyderabad
2013-16 Head, Dept of Organic and Medicinal Chemistry, DRILS
2016- Distinguished Research Professor in Chemistry and Chemical Biology, Dr. Reddy's Institute of Life Sciences (DRILS), Univ of Hyderabad Campus, Hyderabad

Grants Under Review/Preparation

Canada-Israel Joint Initiative. Biology and Chemistry of Protein Translational Signaling Pathways
Jerry Pelletier, Biochem, McGill (PI), Co-PI Weismann Institute, Israel and Prabhat Arya, DRILS
Hyderabad. Period 3 years

DST SERB - Intensification of Research in High Priority Areas (IRHPA). Chemical Biology Approaches to Study the Differentiation of Human Stem Cells to Neurons by Novel, Natural Product-Inspired Compounds. Team Members: Subhadra Dravida, Founder and CEO and Anand Ram Soorneedi, Transcell Biologics, Hyderabad, Kaveh Mashayekhi and Madhu Mohan, Sandor Life Sciences Hyderabad, N. Sadananda Singh, School of Biology, IISER TVM, Kiranam Chatti, Biology Dept, DRILS Hyderabad, Amitabha Majumdar, Wellcome-DBT Intermediate Fellow, NCCS Pune, Steve Haggarty, MGH Boston (strategic collaborator), Satish Srinivas Kitambi, Karolinska Inst Sweden, Hari Narayana Rao, Reliance Life Sciences, Mumbai, Prabhat Arya, Chemistry, DRILS (Team Coordinator and Leader). Period 5 years

DST SERB Distinguished Fellow, Prabhat Arya. Period 3 years

DST Organic Chemistry Panel - Special Call. Natural Product-inspired Compounds Induce the Differentiation of Human Mesenchymal Stem Cells to Neurons: The Implications to Neurological Disorders. Prabhat Arya (PI), Subhadra Dravida, CEO and Founder, Transcell Biologics, Hyderabad, and Amitabha Majumdar, Wellcome-DBT Intermediate Fellow, NCCS Pune. Period 3 years

Ongoing Grants

Canada-Israel Joint Initiative. Chemistry and Biology of Protein Tyrosine Phosphatases. Michel Tremblay (PI), Biochem, McGill, Ari Elson, Weismann Institute, Israel, Prabhat Arya, DRILS Hyderabad, Period 2017-2020 (3 years), Amount 30K CDN Arya funds per year

Karolinska Institute, Sweden. Expertise in Advanced Organic Synthesis and Med Chem, Prabhat Arya
Period 2016-2017 (1 year), Amount 13 Lakhs

Ministry of Earth Sciences (MoES) / CSIR-CDRI Title of Grant- Latrunculin and Eribulin Sub-structures Derived Macrocyclic Toolbox, Name of PI - Prabhat Arya, Kiranam Chatti, Biology Dept, DRILS Hyderabad, Period 2016-2019, 3 years, Amount 56.0 Lakhs

DST-SERB, Title of Grant - Hybrid Natural Products to Hunt for Functional Small Molecules, Name of PI - Prabhat Arya, Period 2015-2018, 3 years, Amount 43.0 Lakhs

Peer Reviewed Publications 105

Patents 12

Book Chapters 6

Invited Talks 152

Training of Highly Qualified Personnel 55 PDFs, 12 PhD (10 from India, 2009 onwards), 3 MS and 3 TOs and several undergraduate students

Recent Selected Publications (From My Current India Tenure, 2009-)

1. 14-Membered Macrocyclic Ring-derived Toolbox: The Identification of Small Molecule Inhibitors of Angiogenesis and an Early Embryo Development in Zebrafish Assays. Madhu Aeluri, Chinmoy Pramanik, Lakshindra Chetia, Naveen Kumar Mallurwar, Sridhar Balasubramanian, Gayathri Chandrasekar, Satish Srinivas Kitambi, and Prabhat Arya. *Org. Lett.* 2013, 15(3), 436-439
2. Macrocyclic Glycohybrid Toolbox Identifies Novel Anti-angiogenesis Agents from Zebrafish Assay. Bhanudas Dasari, Srinivas Jogula, Ramdas Borhade, Sridhar Balasubramanian, Gayathri Chandrasekar, Satish Srinivas Kitambi, and Prabhat Arya. *Org. Lett.* 2013, 15(3), 432-435
3. Tetrahydroquinoline-derived Macrocyclic Toolbox Identifies Novel Anti-angiogenesis Agents and Inhibitors of an Early Embryo Development in Zebrafish Assays. Shiva Krishna Reddy Guduru, Srinivas Chamakuri, Gayathri Chandrasekar, Satish Srinivas Kitambi and Prabhat Arya. *ACS Med. Chem. Lett.*, 2013, 4, 666-670
4. Small Molecule Modulators of Protein-Protein Interactions: Selected Case Studies. Madhu Aeluri, Srinivas Chamakuri, Bhanudas Dasari, Shiva Krishna Reddy Guduru, Ravikumar Jimmidi, Srinivas Jogula and Prabhat Arya. *Chem. Rev.* 2014, 114, 4640-4690 (for a theme topic: Chemical Biology of Protein-Protein Interactions; Guest Editor: Prabhat Arya)
5. A Divergent Approach to Building Latrunculin Family-derived, Hybrid Macrocyclic Toolbox. M. Aeluri, M.; B. Dasari, P. Arya. *Org. Lett.* 2015, 17(3), 472-475.
6. Practical Stereoselective Synthesis of Eribulin Fragment toward Building a Hybrid Macrocyclic Toolbox. Ravikumar Jimmidi, Shiva Krishna Reddy Guduru and P. Arya. *Org. Lett.* 2015, 17(3), 468-471.
7. Stereoselective Synthesis of Rapamycin Fragment to Build a Macrocyclic Toolbox. Shiva Krishna Reddy Guduru, Ravikumar Jimmidi, Girdhar Singh Deora and Prabhat Arya. *Org. Lett.* 2015, 17(3), 480-483.
8. Selected Hybrid Natural Products as Tubulin Modulators. Invited mini-review article. Bhanudas Dasari, Ravikumar Jimmidi and Prabhat Arya. *Eur. J. Med. Chem.* 2015, 94, 497-508 (special issue on "novel chemistry for undruggable targets").
9. Stereoselective Synthesis of C27-C35 Eribulin Fragment for Building A Macrocyclic Diversity. Saidulu Konda, Naveen Kumar Mallurwar, Mahender Khatravath, Pallavi Rao, Shivashankar Sripally, Javed Iqbal and Prabhat Arya. *Synthesis* (special topic: target oriented synthesis of complex molecules) 2016, 48, 1663-1683.
10. Macrocyclic Toolbox from Epothilone Fragment Identifies A Small Molecule Showing Molecular Interactions with Actin and Novel Promoters of Apoptosis in Patient-derived Brain Tumor Cells. Bhanudas Dasari, Jagan Gaddam, Temesgen Fufa, Madhu Aeluri, Girdhar Singh Deora, Frank Gaunitz, Satish Srinivas Kitambi and Prabhat Arya. *Asian JOC.* 2016, 5, 976-980
11. A Macrocyclic Small Molecule Having Cyclosporin A-Like Activity Prevents the Induction of Mitochondrial Permeability Transition and Cytochrome c. Govardhan K. Shroff, Mithila Sawant, Ravikumar, Jimmidi, Girdhar Singh Deora, Sandhya Sitasawad, Kiranam Chatti, Prabhat Arya and Prasenjit Mitra. 2016, submitted.
12. A Modular Approach to Building 17- and 18-Membered Macrocyclic Diversity from Eribulin C14-C21 Fragment. Naveen Kumar Mallurwar, Saidulu Konda, Mahender Khatravath, Pallavi Rao, Shivashankar Sripally, Javed Iqbal and Prabhat Arya. 2016, submitted.
13. Synthesis of C1-C10 Eribulin Fragment and its Analogues for Building A Diverse Set of Macrocycles. Mahender Khatravath, Saidulu Konda, Naveen Kumar Mallurwar, Pallavi Rao, Shivashankar Sripally, Javed Iqbal and Prabhat Arya. 2016, submitted.
14. Small molecule inhibition of pro-apoptotic Bax and Bak promotes long term cell survival and protects primary neurons from excitotoxicity. Xin Niu, Hetal Brahmhatt, Philipp Mergenthaler, Zhi Zhang, Jing Sang, Wibke Diederich, Eve Wong, Weijia Zhu, Justin Pogmore, Jyoti P. Nandy, Maragani Satyanarayana, Ravi K. Jimmidi, Prabhat Arya, Brian Leber, Jialing Lin, Carsten Culmsee, Jing Yi and David W. Andrews. 2016 submitted.
15. Geldanamycin-Inspired Compounds Induce Direct Trans-differentiation of Human Mesenchymal Stem Cells to Neurons. Srinivas Jogula, Anand Soorneedi, Jagan Gaddam, Srinivas Chamakuri, Girdhar Singh Deora, Ranjith Kumar Indarapu, Subhadra Dravida, and Prabhat Arya. 2017, submitted.

Recent Selected Patents

1. Novel Geldanamycin-inspired compounds as the direct converters of human / patient mesenchymal stem cells to neurons and method of its preparation thereof. Subhadra Dravida, Ranjit Kumar, Anand Soorneedi, Jogula Srinivas and Prabhat Arya. India and US provisional patent submitted, 2016.
2. Neopeltolide-inspired, novel macrocyclic small molecules as the transdifferentiators of human mesenchymal stem cell to neuronal progenitors and the methods of preparation thereof. Subhadra Dravida, Ranjit Kumar, Anand Soorneedi, Jagan Gaddam and Prabhat Arya. India and US provisional patent submitted, 2016.
3. Design and synthesis of heterocyclic-derived macrocyclic compounds and their application as the direct converters of human mesenchymal stem cells to neurons. Subhadra Dravida, Ranjit Kumar, Anand Soorneedi, Jagan Gaddam, Madhu Aeluri and Prabhat Arya. India and US provisional patent, submitted, 2017.
4. Design and synthesis of furan ring-derived macrocyclic compounds and their utility as the trans-differentiators of human mesenchymal stem cells to neuronal progenitors. Subhadra Dravida, Ranjit Kumar, Anand Soorneedi, Ravi Kumar Jimmidi, Saidulu Konda, Naveen Kumar Mullurwar, Javed Iqbal and Prabhat Arya, India and US provisional patent, submitted, 2017.