

Deepti Goyal (Ph.D.)

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E-mail: [deeptigoyal@davchd.ac.in](mailto:deeptigoyal@davchd.ac.in)**Education**

**Ph.D. in Chemistry** (2007–2012) 8.84/10 (CPI)

**Indian Institute of Technology (IIT) Bombay**, Mumbai, India

Thesis title “*Design of New Synthetic Strategies to Modified Amino Acids and Peptides*”

Thesis Supervisor: Prof. Sambasivarao Kotha

**M.Sc. (Honours School) Chemistry** (2004–2006) 72.7%

Panjab University, Chandigarh, India

**B.Sc. (Honours School) Chemistry** (2001–2004) 74.1%

(Physics and Mathematics as subsidiary subjects)

(**Gold Medalist**)

Panjab University, Chandigarh, India

**Teaching and Research Experience**

Assistant Professor	DAV College, Sector 10, Chandigarh, India	April 2021–Present
Assistant Professor	Sri Guru Granth Sahib World University, Fatehgarh Sahib, Punjab, India	January 2015–April 2021
Visiting Research Fellow	Department of Chemistry, Michigan Technological University, Michigan, USA	July 2014–October 2014
Assistant Professor	Shoolini University, Bajhol, Solan, HP, India	July 2013–June 2014
Teaching Assistant	Indian Institute of Technology (IIT)-Bombay, Mumbai, India	July 2008–December 2009

**Sponsored research projects**

A research project entitled ‘*Design, Synthesis and Evaluation of Modified Short Peptides as Inhibitors of Amyloid- $\beta$  ( $A\beta$ ) Peptide Aggregation*’ under the **Start-Up Research Grant (Young Scientists) Scheme by the Science and Engineering Research Board (SERB)**, Govt. of India. October 2015–October 2018.

**Awards and Honours**

- Invited talk at 26<sup>th</sup> ISCB (Indian Society of Chemists and Biologists) International Conference (ISCBC-2020) at Nirma University, Ahmedabad, January 22<sup>nd</sup>–24<sup>th</sup>, **2020**.
- Awarded CSIR-SRF direct to three Ph.D. students from our research group under my mentorship in the year **2019** and **2020**.
- Selected as one of the candidate for attending the 111<sup>th</sup> Orientation course being organised by Human Resource Development Centre from May 26<sup>th</sup>–June 22<sup>nd</sup>, **2016** at Panjab University, Chandigarh.
- Awarded a **research project entitled** ‘*Design, Synthesis and Evaluation of Modified Short Peptides as Inhibitors of Amyloid- $\beta$  ( $A\beta$ ) Peptide Aggregation*’ under the **Start-Up Research Grant (Young Scientists) Scheme by the Science and Engineering Research Board (SERB)**, Govt. of India, **2015**.
- Awarded Young Scientist Foreign Travel Grant from **DST** and **CSIR** India to present a poster in 242<sup>nd</sup> **American Chemical Society National Meeting & Exposition**, Denver, Colorado, USA August 28<sup>th</sup>–September 01<sup>st</sup>, **2011**.
- Senior Research Fellow (**SRF**) award through CSIR–UGC, India **January 2009 - December 2011**.
- Junior research fellow (**JRF**) award through National Eligibility Test (**NET**) conducted by CSIR-UGC, India **January 2007– December 2008**.
- Recipient of Prof. Prem Singh Medal for standing **1<sup>st</sup> in B.Sc. (Honours School) Chemistry 2004**.
- Recipient of 1st prize in State Science Exhibition **2000**.
- Recognized as one of the meritorious candidates by **Government of India, National Scholarships Scheme 1998**.

**Publications in Peer-Reviewed Journals**

1. An  $\alpha$ -Helix Mimetic Oligopyridylamide, ADH-31, Modulates A $\beta$ <sub>42</sub> Monomer Aggregation and Destabilizes Protofibril Structures: Insights from Molecular Dynamics Simulations. Kaur, A.; Goyal, D.; Goyal, B. *Phys. Chem. Chem. Phys.* **2020**, *22*, 28055–28073. (**Impact factor: 3.43**)
2. Targeting Human Islet Amyloid Polypeptide Aggregation and Toxicity in Type 2 Diabetes: An Overview of Peptide-Based Inhibitors. Saini, R. K.; Goyal, D.; Goyal, B. *Chem. Res. Toxicol.* **2020**, *33*, 2719–2738. (**Impact factor: 3.18**)
3. Impact of Mutations on the Conformational Transition from  $\alpha$ -Helix to  $\beta$ -Sheet Structures in Arctic-Type A $\beta$ <sub>40</sub>: Insights from Molecular Dynamics Simulations. Saini, R. K.; Shuaib, S.; Goyal, D.; Goyal, B. *ACS Omega* **2020**, *5*, 23219–23228. (**Impact factor: 2.87**)
4. How Does the Mono-triazole Derivative Modulate A $\beta$ <sub>42</sub> Aggregation and Disrupt a Protofibril Structure: Insights from Molecular Dynamics Simulations. Kaur, A.; Kaur, A.; Goyal, D.; Goyal, B. *ACS Omega* **2020**, *5*, 15606–15619. (**Impact factor: 2.87**)
5. Targeting the Dimerization of the Main Protease of Coronaviruses: A Potential Broad-Spectrum Therapeutic Strategy. Goyal, B.; Goyal, D. *ACS Comb. Sci.* **2020**, *22*, 297–305. (**Impact factor: 3.38**)
6. Interactions of a Multifunctional Di-triazole Derivative with Alzheimer's A $\beta$ <sub>42</sub> Monomer and A $\beta$ <sub>42</sub> Protofibril: A Systematic Molecular Dynamics Study. Kaur, A.; Shuaib, S.; Goyal, D.; Goyal, B. *Phys. Chem. Chem. Phys.* **2020**, *22*, 1543–1556. (**Impact factor: 3.43**)
7. In Silico-guided Identification of Potential Inhibitors against  $\beta$ <sub>2m</sub> Aggregation in Dialysis-related Amyloidosis. Narang, S. S.; Goyal, D.; Goyal, B. *J. Biomol. Struct. Dyn.* **2020**, *38*, 3927–3941. (**Impact factor: 3.31**)
8. Impact of K16A and K28A Mutation on the Structure and Dynamics of Amyloid- $\beta$ <sub>42</sub> Peptide in Alzheimer's Disease: Key Insights from Molecular Dynamics Simulations. Shuaib, S.; Saini, R. K.; Goyal, D.; Goyal, B. *J. Biomol. Struct. Dyn.* **2020**, *38*, 708–721. (**Impact factor: 3.31**)
9. Inhibition of Alzheimer's Amyloid- $\beta$ <sub>42</sub> Peptide Aggregation by a Bi-Functional Bis-tryptoline Triazole: Key Insights from Molecular Dynamics Simulations. Narang, S. S.; Goyal, D.; Goyal, B. *J. Biomol. Struct. Dyn.* **2020**, *38*, 1598–1611. (**Impact factor: 3.31**)
10. Molecular Insights into the Inhibitory Mechanism of Bi-Functional Bis-tryptoline Triazole against  $\beta$ -secretase (BACE1) Enzyme. Narang, S. S.; Goyal, D.; Goyal, B. *Amino Acids* **2019**, *51*, 1593–1607. (**Impact factor: 3.06**)
11. Diversity-Oriented Approaches to Polycycles and Heterocycles via Enyne Metathesis and Diels-Alder Reaction as Key Steps. Kotha, S.; Chavan, A. S.; Goyal, D. *ACS Omega* **2019**, *4*, 22261–22273. (**Impact factor: 2.87**)
12. Multifunctional Mono-triazole Derivatives Inhibit A $\beta$ <sub>42</sub> Aggregation and Cu<sup>2+</sup>-Mediated A $\beta$ <sub>42</sub> Aggregation and Protect Against A $\beta$ <sub>42</sub>-Induced Cytotoxicity. Kaur, A.; Narang S. S.; Kaur, A.; Mann, S.; Priyadarshi, N.; Goyal, B.; Singhal, N. K.; Goyal, D. *Chem. Res. Toxicol.* **2019**, *32*, 1824–1839. (**Impact factor: 3.18**)
13. Multi-target-directed Triazole Derivatives as Promising Agents for the Treatment of Alzheimer's Disease. Kaur, A.; Mann, S.; Kaur, A.; Priyadarshi, N.; Goyal, B.; Singhal, N. K.; Goyal, D. *Bioorg. Chem.* **2019**, *87*, 572–584. (**Impact factor: 4.83**)
14. Computational Design and Evaluation of  $\beta$ -Sheet Breaker Peptides for Destabilizing Alzheimer's Amyloid- $\beta$ <sub>42</sub> Protofibrils. Shuaib, S.; Narang, S. S.; Goyal, D.; Goyal, B. *J. Cell. Biochem.* **2019**, *120*, 17935–17950. (**Impact factor: 4.23**)
15. Insights into the Inhibitory Mechanism of a Resveratrol and Clioquinol Hybrid against A $\beta$ <sub>42</sub> Aggregation and Protofibril Destabilization: A Molecular Dynamics Simulation Study. Saini, R. K.; Shuaib, S.; Goyal, D.; Goyal, B. *J. Biomol. Struct. Dyn.* **2019**, *37*, 3183–3197. (**Impact factor: 3.31**)
16. Benzofuran and Indole: A Promising Scaffold for Drug Development in Alzheimer's Disease. Goyal, D.; Kaur, A.; Goyal, B. *ChemMedChem* **2018**, *13*, 1275–1299. (**Impact factor: 3.12**)
17. Molecular Insights into the Effect L17A/F19A Double Mutation on the Structure and Dynamics of A $\beta$ <sub>40</sub>: A Molecular Dynamics Simulation Study. Saini, R. K.; Shuaib, S.; Goyal, D.; Goyal, B. *J. Cell. Biochem.* **2018**, *119*, 8949–8961. (**Impact factor: 4.23**)
18. Assessing the Effect of D59P Mutation in the DE Loop Region in Amyloid Aggregation Propensity of  $\beta$ <sub>2</sub>-Microglobulin: A Molecular Dynamics Simulation Study. Narang, S. S.; Shuaib, S.; Goyal, D.; Goyal, B. *J. Cell. Biochem.* **2018**, *119*, 782–792. (**Impact factor: 4.23**)

19. Insights into the Inhibitory Mechanism of Dicyanovinyl-Substituted J147 Derivative against A $\beta$ <sub>42</sub> Aggregation and Protofibril Destabilization: A Molecular Dynamics Simulation Study. Shuaib, S.; Saini, R. K.; Goyal, D.; Goyal, B. *ChemistrySelect* **2017**, *2*, 1645–1657. (*Impact factor: 1.81*)
20. Rationally Designed Peptides and Peptidomimetics as Inhibitors of Amyloid- $\beta$  (A $\beta$ ) Aggregation: Potential Therapeutics of Alzheimer's Disease. Goyal, D.; Shuaib, S.; Mann, S.; Goyal, B. *ACS Comb. Sci.* **2017**, *19*, 55–80. (*Impact factor: 3.38*)
21. CuO Nanostructures of Variable Shapes as an Efficient Catalyst for [3+2] Cycloaddition of Azides with Terminal Alkyne. Kaur, A.; Mann, S.; Goyal, B.; Pal, B.; Goyal, D. *RSC Adv.* **2016**, *6*, 102733–102743. (*Impact factor: 3.11*)
22. Synthesis of Oligodeoxynucleotides Containing Electrophilic Groups. Lin, X.; Chen, J.; Shahsavari, S.; Green, N.; Goyal, D.; Fang, S. *Organic Lett.* **2016**, *18*, 3870–3873. (*Impact factor: 6.09*)
23. Diversity Oriented Approaches to Polycyclics and Bio-inspired Molecules via the Diels–Alder Strategy: Green Chemistry, Synthetic Economy and Beyond. Kotha, S.; Chavan, A. S.; Goyal, D. *ACS Comb. Sci.* **2015**, *17*, 253–302. (*Impact factor: 3.38*)
24. Synthesis of Indole and its Derivatives in Water. Gupta, N.; Goyal, D. *Chem. Heterocycl. Compd.* **2015**, *51*, 4–16. (*Impact factor: 1.51*)
25. Diversity Oriented Approaches to Unusual Amino Acids and Peptides: Step Economy, Atom Economy, Redox Economy and Beyond. Kotha, S.; Goyal, D.; Chavan, A. S. *J. Org. Chem.* **2013**, *78*, 12288–12313. (*The TOC of the paper is published as a cover-art for JOC*) (*Impact factor: 4.33*)
26. Diversity Oriented Approach to Triazole Based Peptidomimetics as Mammalian Sterile 20 Kinase Inhibitors. Kotha, S.; Goyal, D.; Bitra, A.; Thota, N.; Kruger, G.; Anand, R. *RSC Adv.* **2013**, *3*, 24447–24454. (*Impact factor: 3.11*)
27. A Novel Di-triazole Based Peptide as a Sensitive and Selective Fluorescent Chemosensor for Zn<sup>2+</sup> ions. Kotha, S.; Goyal n $\grave{e}$ e Bansal, D. Banerjee, S.; Datta, A. *Analyst* **2012**, *137*, 2871–2875. (*During the month of May, 2012 this article was amongst the top ten accessed articles from the online version of Analyst*) (*Impact factor: 3.97*)
28. Synthesis of Modified Phenylalanine Peptides by Cross Enyne Metathesis and Diels–Alder Reaction as Key Steps. Kotha, S.; Goyal n $\grave{e}$ e Bansal, D.; Thota, N.; Srinivas, V. *Eur. J. Org. Chem.* **2012**, *2012*, 1843–1850. (*Impact factor: 2.88*)
29. Synthesis of a New Fluorescent Macrocyclic  $\alpha$ -Amino Acid Derivative via Tandem Cross-ene/yne/Ring-closing Metathesis Cascade Catalyzed by Ruthenium Based Catalysts. Kotha, S.; Bansal, D.; Singh, K.; Banerjee, S. *J. Organomet. Chem.* **2011**, *696*, 1856–1860. (*Impact factor: 2.30*)
30. Synthesis of Symmetrical and Unsymmetrical Trisubstituted Benzene Derivatives through Ring-Closing Alkyne Metathesis Strategy and Depropargylation with Various Catalysts. Kotha, S.; Bansal, D.; Kumar, R. V. *Indian J. Chem. B* **2009**, *48B*, 225–230. (*Impact factor: 0.38*)

#### Details of Ph. D./ M.Phil./ M.Sc. students enrolled/ completed

**Ph.D.**– 5 (enrolled), 1 (completed); **M.Phil.**– 3 (completed); **M.Sc.**– 13 (completed)

#### Conferences and workshops

- **26<sup>th</sup> ISCB International Conference (ISCBC-2020)** from 22<sup>nd</sup>–24<sup>th</sup> January, **2020** at Nirma University, Ahmedabad, India. *Invited talk*
- **International e-Conference & e-Faculty Development Program 2020** from 17<sup>th</sup>–22<sup>nd</sup> August, **2020** organised by Chitkara College of Pharmacy, Chitkara University, Punjab, India. *Attended*
- **Refresher course in Engineering, Physical Sciences & Management themed Trends in Pharma Development, Technology & Practices** from 22<sup>nd</sup> June–4<sup>th</sup> July, **2020** organised by Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi in collaboration with AICET, New Delhi, India. *Attended*
- **88<sup>th</sup> Annual Meeting of the SBCI-2019 and Conference on Advances at the Interface of Biology and Chemistry** from 1<sup>st</sup>–3<sup>rd</sup> November, **2019** at BARC, Mumbai, India. *Poster presentation*
- **10<sup>th</sup> National Conference on Recent Advances in Chemical and Environmental Sciences 2019** from 11<sup>th</sup>–12<sup>th</sup> April, **2019** at Multani Mal Modi College, Patiala, India. *Poster presentation*

- **11<sup>th</sup> Chandigarh Science Congress (CHASCON) 2017** from 9<sup>th</sup>–11<sup>th</sup> March, 2017 at Panjab University, Chandigarh, India. *Attended*
- **111<sup>th</sup> Orientation course** being organised by Human Resource Development Centre from 26<sup>th</sup> May–22<sup>nd</sup> June, **2016** at Panjab University, Chandigarh. *Attended*
- **World Congress on Drug Discovery & Development 2016** from 23<sup>rd</sup>–25<sup>th</sup> November, 2016 at Indian Institute of Science, Bengaluru, India. *Poster presentation*
- **National Conference on Recent Advances in Chemical Science 2016** from 11<sup>th</sup>–12<sup>th</sup> November, 2016 at Maharishi Markandeshwar University, Mullana, Haryana, India. *Oral presentation*
- **5<sup>th</sup> National Symposium on Advances in Chemical Sciences 2016** from 2<sup>nd</sup>–3<sup>rd</sup> February, 2016 at Guru Nanak Dev University, Amritsar, India. *Attended*
- **7<sup>th</sup> National Conference on Recent Advances in Chemical, Biological and Environmental Sciences 2015** from 30<sup>th</sup> - 31<sup>st</sup> January, 2015 at Multani Mal Modi College, Patiala, India. *Attended*
- **Emerging Horizons in Science and Technology 2014** from 17<sup>th</sup>–18<sup>th</sup> January, 2014 at Sri Guru Granth Sahib World University, Fatehgarh Sahib, Punjab, India. *Oral presentation*
- **3<sup>rd</sup> Indo-German Symposium on Frontiers of Chemistry 2011** from 27<sup>th</sup>–28<sup>th</sup> September, 2011 at IIT Bombay, Mumbai, India. *Poster presentation.*
- **242<sup>nd</sup> ACS 2011** from 28<sup>th</sup> August–1<sup>st</sup> September, 2011 in Denver, Colorado, USA. *Poster presentation*
- **Research Scholar Meet 2011** from 25<sup>th</sup>–26<sup>th</sup> February, 2011 at N. G. Acharya & D. K. Marathe College, Mumbai, India. *Oral presentation*
- **Indo-US Symposium on Modern Trends in Molecular Structures 2011** from 21<sup>st</sup>–24<sup>th</sup> February, 2011 at IIT Bombay, Mumbai, India. *Poster presentation*
- **6<sup>th</sup> J-NOST 2011** from 28<sup>th</sup>–31<sup>st</sup> January, 2011 at University of Hyderabad, Hyderabad, India. *Poster Presentation*
- **In-House Symposium 2010** on 27<sup>th</sup> February, 2010 at IIT Bombay, Mumbai, India. *Poster presentation*
- **Symposium on Recent Trends in Biophysics 2010** from 13<sup>th</sup>–15<sup>th</sup> February 2010 at Banaras Hindu University, Varanasi, India. *Poster presentation*

### Memberships of Professional Bodies

1. Life member of Society of Biological Chemists, India
2. Life member of Indian Peptide Society
3. Life member of Indian Biophysical Society
4. Life member of Chemical Research Society of India
5. Life member of IIT Bombay Alumni Association
6. Life member of Chemical Society, Department of Chemistry, Panjab University
7. Member of American Chemical Society

### Other Responsibilities

Designation	Nature of responsibility	Period
Extra-curricular Activity Incharge	Coordinating seminars, parties and trips for the students	01-07-2015 to 30-06-2017
Member of Research and Development Committee of the Dept.	To evaluate the research progress of the students of Dept.	01-07-2016 to 30-06-2017 01-09-2018 to 31-08-2020
Member of Board of Studies of the Dept.	To upgrade the course curriculum for various courses of Dept.	01-07-2016 to 30-06-2017
Ph.D. Coordinator	To take care of issues related to Ph.D. students	01-07-2017 to 30-06-2018
Member of Research and Innovation Cell	To attract research funding from Government agencies	07-02-2020 to 08-02-2021