Dr. Mrinmoy De

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Department of Organic Chemistry
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Education:

2003 – 2009 Department of Chemistry, University of Massachusetts, Amherst, MA, USA.

- Ph.D. studies on the interaction of biomolecules with nanoparticle-based receptors.
- Research under the supervision of Prof. Vincent M. Rotello, "Engineering the Nanoparticle Surface for Protein Recognition and Applications".

2002 – 2003 Indian Institute of Technology, Bombay, India.

- Research Fellow under Prof. Vishwakarma Singh. Worked on total synthesis of natural compounds.

2000 – 2002 Indian Institute of Technology, Bombay, India.

- M.Sc. studies in Organic Chemistry.
- Project under the supervision of Prof. Sujata V. Bhat, "Synthesis and Evaluation of Bioactivity of Novel Podophylotoxin Analogues".

1997 – 2000 Vidyasagar University, Midnapur, India.

- B.Sc. studies in Chemistry.

Professional Experience:

- **2020- Present** *Associate Professor* in the Department of Organic Chemistry, IISc, Bangalore.
- **2014- 2020** *Assistant Professor* in the Department of Organic Chemistry, IISc, Bangalore.
- **Post-Doctoral research**
- **2011- 2014** Senior Research Assistant in Materials Science and Engineering Department, Northwestern University, Evanston, IL, USA. with Prof. Vinayak P. Dravid.
- **2009- 2011** CCNE and NSEC Postdoctoral Fellow in Materials Science and Engineering Department, Northwestern University, Evanston, IL, USA. with Prof. Vinayak P. Dravid.

Research activities: Developed synthesis, functionalization and characterization of various nanomaterials and their applications in related fields such as antimicrobial activity, sensing, delivery, molecular recognition, catalysis etc. For the first time, we demonstrated the surface modifications of various polymorphs of 2D transition metal dichalcogenides such as MoS_2 using thiolate ligands. The mechanism and nature of functionalization was also demonstrated, which is considered as an important milestone for functionalized 2D-MoS_2 nanomaterials. The reported functionalization method is followed globally for the functionalization of 2D transition metal dichalcogenides and applied in many directions. We have shown these functionalized materials exhibits state of the art antibacterial activities against MDR bacterial strains. Moreover, we shown the in vivo specific antibacterial and antibiofilm activity using those newly developed antimicrobial agents. For more suitable administration of those nano-antibiotics we used newly developed lipid nanoparticles with enhanced biocompatibility and stability.

Awards and Honors:

- **2024 – Bronze Medal,** Chemical Research Society of India (CRSI)
- **2024 – IOE Travel Grant Award** by Indian Institute of Science (IISc)
- **2022 – Silver Medal**, Chintan Rasayan Sanstha (CRS)
- **2015 – DST Young Scientist Award** by Science and Engineering Research Board (SERB)
- **2010 – Outstanding Researcher Award** by NSF Nanoscale Science & Engineering Center (NSEC)
- **2008** – **Graduate Student Travel Grant Award** by University of Massachusetts.
- **2007** – **Procter & Gamble** Outstanding Graduate Student Research Award.
- **2006** – **Marvin Rausch** Outstanding Poster Award Sponsored by Fisher Scientific.
- **2002** – **Ranked 2nd** in 2002, M.Sc. Chemistry, IIT Bombay, India.

- **2000** – **Gold Medalist** in 2000, B.Sc. Chemistry, Vidyasagar University, India.

Professional Service and Membership:

- Member of American Chemical Society (ACS), Material Research Society (MRS), Materials Research Society of Singapore (MRS-S), Chemical Research Society of India (CRSI), Society for Biomaterials and Artificial Organs, India (SBAOI).
- Member of MRS Meetings Assessment Subcommittee (MRS-MASC)
- Guest editor for Bioconjugate chemistry, American Chemical Society.
- Section editor: Medicinal Chemistry, Bentham Science.
- Member of X-Ray facility of IISc.

Research Interests:

- Synthesis and functionalization of various nanomaterials
- Application in antimicrobial materials, nanozyme, sensing, and photocatalysis

Guidance of Students:

PhD: graduated - 9, Current – 8 **MSc:** 2 **UG**: 11

Teaching: Courses taught: Basic Organic Chemistry (theory and lab), Organic Chemistry - Structure and Reactivity, Chemistry of Biomolecules.

Patents:

2. Santanu Mukherjee, Mrinmoy De, Aditya Chakrabarty, Komal Jaiswal, "Naphthoquinone based compounds, preparation and implementations thereof" Indian Patent application no. 202441040313, 23 May 2024. Pending.
1. Mrinmoy De, Komal Jaiswal, Koyel Roy, "A process for preparation of heterocyclic compounds and its application as antibiotics" Indian Patent application no. 202441051774, 5 July 2024. Pending.

Publications: Total no.- 89, h-index- 40, i-10-index- 69.

Journal	No	IF	Journal	No	IF
J. Am. Chem. Soc.	10	15.0	Inorg. Chem.	2	4.6
Angew. Chem. Int. Ed.	4	16.6	Small	1	13.3
Nature Chem.	1	21.8	ACS Catalysis	1	12.9
Nat. Nanotechnol.	1	38.3	Curr. Opin. Chem. Biol.	1	7.8
Adv. Mat.	1	29.4	Org. Lett.	1	5.2
Chem. Commun.	3	6.2	Proc. Natl. Acad. Sci.-USA	1	11.1
Nano Lett.	4	10.8	Adv. Drug Deliv. Rev.	2	16.1
ACS Nano	3	17.1	ACS Omega	4	4.1
Nanoscale	4	8.307	J. Org. Chem.	1	3.6
J. Mater. Chem. B	3	7.0	Acc. Mater. Res.	1	14.6
Chem. Mater.	1	8.6	ChemPlusChem	3	3.4
ACS Appl. Mater. Interfaces	4	9.5	Adv. Synth. Catal.	1	5.85
ACS App. Nano Mater.	4	5.9	ACS Biomater. Sci. Eng.	1	5.67
ACS Appl. Bio Mater.	3	4.7	Chem. Asian J.	2	4.568
Chem. Eur. J.	2	4.352	J. Phy. Chem. C	1	3.7
ChemCatChem	1	5.49	Org. Chem. Front.	1	4.6

Publications after joining IISc:

90. Chakraborty, D.; Kaur, N.; Sahoo, J.; Hickey, N.; De, M.; Mukherjee, P. S. Host–Guest Interactions Induced Enhancement in Oxidase-Like Activity of a Benzothiadiazole Dye Inside an Aqueous Pd8L4 Barrel. *J. Am. Chem. Soc*. **2024**, *ASAP*.
89. Chakraborty, A.; Jaiswal, K.; De, M.; Mukherjee, S. Rational design of naphthoquinone-based antibacterial agents through iridium-catalyzed enantioselective β-allenylation of 2-hydroxynaphthoquinones. *Org. Chem. Front.* **2024**, *ASAP*
88. Kayal, A.; De, M. Organo-Soluble Colloidal MoS_2 Quantum Dots (QDs) as an Efficient Photocatalyst for α-Amino Phosphonate Synthesis. *ChemCatChem*, **2024**, e202400264.
87. Behera, P.; De, M. Surface-Engineered Nanomaterials for Optical Array Based Sensing. *ChemPlusChem* **2024**, e202300610.
86. Ghosh, R.; Singh, B.; Basu, S.; Mondal, A.; Maiti, P. K.; De, M. Reversing the Trend: Deciphering Self‐Assembly of Unconventional Amphiphiles Having Both Alkyl‐Chain and PEG. *ChemPlusChem* **2024**, e202400147.
85. Das, R. C.; Barik, S.; Kunhiraman, A. A.; Goswami, A.; Mondal, A.; De, M.; Biju, A. T. N-Heterocyclic Carbene-Catalyzed Imine Umpolung/Semipinacol Rearrangement Cascade for the Synthesis of Indoxyls. *ACS Catalysis* **2024**, 4202-4210.
84. Sahoo, J.; Sahoo, S.; Subramaniam, Y.; Bhatt, P.; Rana, S.; De, M. Photo‐Controlled Gating of Selective Bacterial Membrane Interaction and Enhanced Antibacterial Activity for Wound Healing. *Angew. Chem. Int. Ed.* **2024**, *136*, e202314804.
83. Mondal, A.; Salampuriya, R.; Umesh, A.; De, M. Thiol ligand-mediated exfoliation of bulk sulfur to nanosheets and nanodots: applications in antibacterial activity. *J. Mater. Chem. B* **2024**, *12*, 973-983.
82. Mondal, A.; Pandit, S.; Sahoo, J.; Subramaniam, Y.; De, M. Post-functionalization of sulfur quantum dots and their aggregation-dependent antibacterial activity. *Nanoscale* **2023**, *15*, 18624-18638.
81. Kumari, A.; Sahoo, J.; De, M. 2D-MoS_2-supported copper peroxide nanodots with enhanced nanozyme activity: application in antibacterial activity. *Nanoscale* **2023**, *15*, 19801-19814.
80. Jaiswal, K.; Mahanta, M.; De, M. Nanomaterials in photocatalysed organic transformations: development, prospects and challenges. *Chem. Commun.* **2023**, *59*, 5987-6003.
79. Ghosh, R.; De, M. Liposome-Based Antibacterial Delivery: An Emergent Approach to Combat Bacterial Infections. *ACS Omega* **2023**, *8*, 35442-35451.
78. Deore, J. P.; De, M. Semiconductor Quantum Dots Act as Photocatalysts for Carbon–Carbon Bond Formation: Selective Functionalization of Xanthene's 9H Position. *J. Org. Chem.* **2023**, *88*, 16292-16301.
77. Deore, J. P.; De, M. Synthesis of biologically important tetrahydroisoquinoline (THIQ) motifs using quantum dot photocatalyst and evaluation of their anti-bacterial activity. *Org. Biomol. Chem.* **2023**, *21*, 9049-9053.
76. Davanagere, P. M.; De, M.; Chanda, K.; Maiti, B. Diastereo-and Enantioselective Synthesis of Highly Functionalized Tetrahydropyridines by Recyclable Novel Bifunctional C_2-Symmetric Ionic Liquid–Supported (*S*)-Proline Organocatalyst. *Catalysts* **2023**, *13*, 209.
75. Das, S.; Solra, M.; Sahoo, J.; Srivastava, A.; Fathima, S.; De, M.; Rana, S. G-Quadruplex Hydrogel-Based Stimuli-Responsive High-Internal-Phase Emulsion Scaffold for Biocatalytic Cascades and Synergistic Antimicrobial Activity. *Chem. Mater.* **2023**, *36*, 759-771.

74. Daniel, M.; Mathew, G.; De, M.; Bernaurdshaw, N. 012 facets modulated LDH composite for neurotoxicity risk assessment through direct electrochemical profiling of dopamine. *Chemosphere* **2023**, *342*, 140177.
73. Behera, P.; Jaiswal, K.; De, M. Time‐resolved fluorescence sensor array for the discrimination of phosphate anions using transition metal dichalcogenide quantum dots and Tb (III). *Luminescence* **2023**, *38*, 1339-1346.
72. Behera, P.; De, M. Surface‐Engineered Nanomaterials for Optical Array Based Sensing. *ChemPlusChem* **2023**, e202300610.
71. Ali, S. R.; De, M. Defect-Engineered Functionalized MoS_2 Quantum Dots with Enhanced Antibacterial Activity. *ACS Appl. Nano Mater.* **2023**, *6*, 2193-2202.
70. Abdul Rinshad, V.; Sahoo, J.; Venkateswarulu, M.; Hickey, N.; De, M.; Sarathi Mukherjee, P. Solvent Induced Conversion of a Self‐Assembled Gyrobifastigium to a Barrel and Encapsulation of Zinc‐Phthalocyanine within the Barrel for Enhanced Photodynamic Therapy. *Angew. Chem. Int. Ed.* **2023**, *135*, e202218226.
69. Sahoo, J.; De, M. Gram-selective antibacterial activity of mixed-charge 2D-MoS_2. *J. Mater. Chem. B* **2022**, *10*, 4588-4594.
68. Saha, R.; Sahoo, J.; Venkateswarulu, M.; De, M.; Mukherjee, P. S. Shifting the Triangle–Square Equilibrium of Self-Assembled Metallocycles by Guest Binding with Enhanced Photosensitization. *Inorg. Chem.* **2022**, *61*, 17289-17298.
67. Pandit, S.; Maroli, N.; Naskar, S.; Khatri, B.; Maiti, P. K.; De, M. Graphene oxide as a dual template for induced helicity of peptides. *Nanoscale* **2022**, *14*, 7881-7890.
66. Mondal, A.; De, M. Exfoliation, functionalization and antibacterial activity of transition metal dichalcogenides. *Tungsten* **2022**, 1-16.
65. Mathew, G.; Narayanan, N.; Abraham, D. A.; De, M.; Neppolian, B. Facile Green Approach for Developing Electrochemically Reduced Graphene Oxide-Embedded Platinum Nanoparticles for Ultrasensitive Detection of Nitric Oxide. *ACS Omega* **2022**, *7*, 8068–8080.
64. Karunakaran, S.; Sahoo, S.; Sahoo, J.; De, M. Ligand-Mediated Exfoliation and Antibacterial Activity of 2H Transition-Metal Dichalcogenides. *ACS Appl. Bio Mater.* **2022**, *6*, 126-133.
63. Jaiswal, K.; Girish, Y. R.; De, M. Group-VI-chalcogenide-based nanomaterials in photo/thermal organic transformations. *Acc. Mater. Res.* **2022**, *3*, 1033-1048.
62. Jaiswal, K.; Girish, Y. R.; Behera, P.; De, M. Dual role of MoS_2 quantum dots in a cross-dehydrogenative coupling reaction. *ACS Org. Inorg. Au* **2022**, *2*, 205-213.
61. Deore, J. P.; De, M. Photoredox C (sp^3)− C (sp^3) Cross‐Dehydrogenative Coupling of Xanthene with β‐keto Moiety using MoS_2 Quantum Dot (QD) Catalyst. *Adv. Synth. Catal.* **2022**, *364*, 3049-3058.
60. Behera, P.; Kumar Singh, K.; Kumar Saini, D.; De, M. Rapid Discrimination of Bacterial Drug Resistivity by Array‐Based Cross‐Validation Using 2D MoS_2. *Chem. Eur. J.* **2022**, *28*, e202201386. ***(Featured on the cover page of the journal)***.
59. Behera, P.; Karunakaran, S.; Sahoo, J.; Bhatt, P.; Rana, S.; De, M. Ligand Exchange on MoS_2 Nanosheets: Applications in Array-Based Sensing and Drug Delivery. *ACS Nano* **2022**, *17*, 1000-1011.
58. Ali, S. R.; De, M. Fe-Doped MoS_2 nanozyme for antibacterial activity and detoxification of mustard gas simulant. *ACS Appl. Mater. Interfaces* **2022**, *14*, 42940-42949.
57. Ali, S. R.; De, M. Superparamagnetic nickel nanocluster-embedded MoS_2 nanosheets for gram-selective bacterial adhesion and antibacterial activity. *ACS Biomater. Sci. Eng.* **2022**, *8*, 2932-2942.

56. Vannathan, A. A.; Thakre, D.; Ali, S. R.; De, M.; Banerjee, A.; Mal, S. S., "Investigations into the supercapacitor activity of bisphosphonate-polyoxovanadate compounds" *J. Solid State Chem.,* **2021,** *304*, 122566.
55. Mondal, A.; De, M., "Amino Acid-Functionalized MoS_2 Quantum Dots for Selective Antibacterial Activity" *ACS Appl. Nano Mater.* **2021,** *4*, 13947-13954.
54. Ali, S. R.; De, M., "Thiolated Ligand-Functionalized MoS2 Nanosheets for Peroxidase-like Activities" *ACS Appl. Nano Mater.,* **2021,** *4*, 12682-12689.
53. Thakre, D.; Ali, S. R.; Mehta, S.; Alam, N.; Ibrahim, M.; Sarma, D.; Mondal, A.; De, M.; Banerjee, A., "Polyoxovanadates with Ethylidene-Pyridine Functionalized Bisphosphonate Ligands: Synthesis, Structure, Spectroscopic Characterization, Magnetic, and Antibacterial Studies" *Cryst. Growth Des.,* **2021,** *21*, 4285-4298.
52. Mondal, A.; Bhat, I. A.; Karunakaran, S.; De, M. "Supramolecular Interaction of Molecular Cage and β-Galactosidase: Application in Enzymatic Inhibition, Drug Delivery and Antimicrobial Activity" *ChemBioChem*, **2021**, *22*, 1955-1960.
51. Behera, P.; Singh, K. K.; Pandit, S.; Saha, D.; Saini, D. K.; De, M. "Machine Learning-Assisted Array-Based Detection of Proteins in Serum Using Functionalized MoS_2 Nanosheets and Green Fluorescent Protein Conjugates" *ACS App. Nano mater.* **2021**, *4*, 3843-3851.
50. Mathew, G.; Narayanan, N.; Abraham, D. A.; De, M.; Neppolian, B. "Facile Green Approach for Developing Electrochemically Reduced Graphene Oxide-Embedded Platinum Nanoparticles for Ultrasensitive Detection of Nitric Oxide" *ACS omega* **2021**, *6*, 8068-8080.
49. Pandit, S.; Mondal, S.; De, M. "Surface engineered amphiphilic carbon dots: solvatochromic behavior and applicability as a molecular probe" *J. Mater. Chem. B.* **2021,** *9*, 1432-1440.
48. Bhattacharyya, S.; Ali, S. R.; Venkateswarulu, M.; Howlader, P.; Zangrando, E.; *De, M.; *Mukherjee, P. S., "Self-Assembled Pd12 Coordination Cage as Photoregulated Oxidase-Like Nanozyme" *J. Am. Chem. Soc.* **2020,** *142*, 18981-18989.
47. Bhattacharyya, S.; Venkateswarulu, M.; Sahoo, J.; Zangrando, E.; *De, M.; *Mukherjee, P. S. "Self-Assembled PtII8 Metallosupramolecular Tubular Cage as Dual Warhead Antibacterial Agent in Water" *Inorg. Chem.* **2020**, *59*, 12690-12699.
46. Gupta, P. K.; Dravid, V. P.; De, M. "Ultrathin Silica-Coated Iron Oxide Nanoparticles: Size-Property Correlation" *ChemistrySelect,* **2020**, *5*, 8929-8934.
45. Pandit, S.; De, M. "Roles of Edges and Surfaces of Graphene Oxide in Molecular Recognition of Proteins: Implications for Enzymatic Inhibition of α-Chymotrypsin" *ACS App. Nano Mater.* **2020**, *3*, 3829-3838.
44. Behera, P.; Mohanty, A.; De, M. "Functionalized Fluorescent Nanodots for Discrimination of Nitroaromatic Compounds" *ACS App. Nano Mater.* **2020**, *3*, 2846-2856.
43. Jaiswal, K.; Girish, Y. R.; De, M. "Influence of a Tunable Band Gap on Photoredox Catalysis by Various Two-Dimensional Transition-Metal Dichalcogenides" *ACS App. Nano Mater.* **2020**, *3*, 84-93.
42. Pandit, S.; Behera, P.; Sahoo, J.; De, M. "In Situ Synthesis of Amino Acid Functionalized Carbon Dots with Tunable Properties and Their Biological Applications" *ACS App. Bio Mater.* **2019**, *2*, 3393-3403.
41. Behera, P.; De, M. "Nano-Graphene Oxide Based Multichannel Sensor Array Towards Sensing of Protein Mixtures" *Chem. Asian J.* **2019**, *14*, 553-560.
40. Karunakaran, S.; Pandit, S.; De, M. "Functionalized Two-Dimensional MoS_2 with Tunable Charges for Selective Enzyme Inhibition" *ACS Omega,* **2018**, *3*, 17532-17539.

39. Karunakaran, S.; Pandit, S.; Basu, B.; De, M. "Simultaneous Exfoliation and Functionalization of 2H-MoS_2 by Thiolated Surfactants: Applications in Enhanced Antibacterial Activity" *J. Am. Chem. Soc.* **2018**, *140*, 12634-12644.
40. Ali, S. R.; Pandit, S.; De, M. "2D-MoS_2-Based □-Lactamase Inhibitor for Combination Therapy against Drug-Resistant Bacteria" *ACS Appl. Bio Mater.* **2018**, *1*, 967-974.
38. Girish, Y. R.; Biswas, R.; De, M. "Mixed-Phase 2D-MoS_2 as an Effective Photocatalyst for Selective Aerobic Oxidative Coupling of Amines under Visible-Light Irradiation" *Chem. Eur. J.* **2018**, *24*, 13871-13878.
37. Girish, Y. R.; Pandit, S.; Pandit, S.; De, M. "Graphene Oxide as a Carbocatalyst for a Diels-Alder Reaction in an Aqueous Medium" *Chem. Asian J.* **2017**, *12*, 2393-2398.
36. Pandit, S.; De, M. "Empirical Correlation and Validation of Lateral Size-Dependent Absorption Coefficient of Graphene Oxides" *ChemistrySelect,* **2017**, *2*, 10004-10009.
35. Pandit, S.; De, M. "Interaction of Amino Acids and Graphene Oxide: Trends in Thermodynamic Properties" *J. Phy. Chem. C* **2017,** *121*, 600-608.
34. Pandit, S.; Karunakaran, S.; Boda, S. K.; Basu, B.; De, M. "High Antibacterial Activity of Functionalized Chemically Exfoliated MoS_2" *ACS Appl. Mater. Interfaces* **2016**, 8, 31567-31573.
33. Nandwana, V.; Ryoo, S. R.; Kanthala, S.; De, M.; Chou, S. S.; Prasad, P. V.; Dravid, V. P. "Engineered Theranostic Magnetic Nanostructures: Role of Composition and Surface Coating on Magnetic Resonance Imaging Contrast and Thermal Activation" *ACS Appl. Mater. Interfaces* **2016,** *8*, 6953-6961.
32. Viola, K. L.; Sbarboro, J.; Sureka, R.; De, M.; Bicca, M. A.; Wang, J.; Vasavada, S.; Satpathy, S.; Wu, S.; Joshi, H.; Velasco, P. T.; MacRenaris, K.; Waters, E. A.; Lu, C.; Phan, J.; Lacor, P.; Prasad, P.; Dravid, V. P.; Klein, W. L. "Towards Non-invasive Diagnostic Imaging of Early-stage Alzheimer's Disease" *Nat. Nanotechnol.* **2015,** *10*, 91-98.
31. Jaiswal, M. K.; Pradhan, L.; Vasavada, S.; De, M.; Sarma, H. D.; Prakash, A.; Bahadur, D.; Dravid, V. P. "Magneto-Thermally Responsive Hydrogels for Bladder Cancer Treatment: Therapeutic Efficacy and *in vivo* Biodistribution" *Colloid Surf. B,* **2015,** *136*, 625-633.
30. Jaiswal, M. K.; De, M.; Chou, S. S.; Vasavada, S.; Bleher, R.; Prasad, P. V.; Bahadur, D.; Dravid, V. P. "Thermoresponsive Magnetic Hydrogels as Theranostic Nanoconstructs" *ACS Appl. Mater. Interfaces.* **2014,** *6*, 6237-6247.

Publications from PhD and Postdoc:

29. Maitra, Urmimala; Gupta, U.; De, M.; Datta, R.; Govindaraj, A.; Rao, C. N. R. "Highly Effective Visible-Light-Induced H-2 Generation by Single-Layer 1T-MoS_2 and a Nanocomposite of Few-Layer 2H-MoS_2 with Heavily Nitrogenated Graphene" *Angew. Chem. Int. Ed.* **2013,** *52*, 13057-13061.
28. Kashid, R. V.; Late, D. J.; Chou, S. S.; Huang, Y. K.; De, M.; Joag, D. S.; More, M. A.; Dravid, V. P. "Enhanced Field-Emission Behavior of Layered MoS_2 Sheets" *Small* **2013,** *9*, 2730-2734.
27. Falaschetti, C. A.; Paunesku, T.; Kurepa, J.; Nanavati, D.; Chou, S. S.; De, M.; Song, M.; Jang, J. T.; Wu, A. G.; Dravid, V. P.; Cheon, J.; Smalle, J.; Woloschak, G. E. "Negatively Charged Metal Oxide Nanoparticles Interact with the 20S Proteasome and Differentially Modulate Its Biologic Functional Effects" *ACS Nano* **2013,** *7*, 7759-7772.
26. Chou, S. S.; Kaehr, B.; Kim, J.; Foley, B. M.; De, M.; Hopkins, P. E.; Huang, J.; Brinker, C. J.; Dravid, V. P. "Chemically Exfoliated MoS_2 as Near-Infrared Photothermal Agents" *Angew. Chem. Int. Ed.* **2013,** *52*, 4160-4164.

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24. Achari, A.; Datta, K. K. R.; De, M.; Dravid, V. P.; Eswaramoorthy, M. "Amphiphilic Aminoclay-RGO Hybrids: a Simple Strategy to Disperse a High Concentration of RGO in Water" *Nanoscale* **2013**, *5*, 5316-5320.
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22. *Chou, S. S.; *De, M.; Luo, J.; Rotello, V. M.; Huang, J.; Dravid, V. P. "Nanoscale Graphene Oxide (nGO) as Artificial Receptors: Implications for Biomolecular Interactions and Sensing" *J. Am. Chem. Soc.* **2012**, 134, 16725–16733. (*equal contribution)
21. De, M.; Chou, S. S.; Dravid, V. P. "Graphene Oxide as an Enzyme Inhibitor: Modulation of Activity of α-Chymotrypsin" *J. Am. Chem. Soc.* **2011**, 133, 17524–17527.
20. De, M.; Chou, S. S.; Joshi, H. M.; Dravid, V. P. "Hybrid Nanostructures for MRI Applications" *Adv. Drug Del. Rev*. **2011**, *63*, 1282–1299. (***Journal cover page***).
19. Daniel, M-C.; Tsvetkova, I.; Quinkert, Z. T.; Ayaluru, M.; De, M.; Rotello, V. M.; Kao, C. C.; Dragnea, B. "A Critical Surface Charge Density is Required for Nanoparticle-Templated Assembly of Bromovirus Protein Cages" *ACS Nano* **2010**, *4*, 3853-3860.
18. De, M.; Miranda, O. R.; Rana, S.; Rotello, V. M. "Size and Geometry Dependent Protein–Nanoparticle Self-assembly" *Chem. Commun.* **2009**, 2157-2159.
17. De, M.; Rana, S.; Akpinar, H.; Miranda, O. R.; Arvizo, R. R.; Rotello, V. M. "Sensing of Serum Proteins in Human Serum using Nanoparticle-Green Fluorescence Protein Conjugates" *Nature Chem.* **2009**, *1*, 461-465. (***Journal cover page*** **and highlighted in** ***Nature*****,** ***RSC news*** **and more**).
16. Carver, A. M.; De, M.; Bayraktar, H.; Rana, S. Rotello, V. M.; Knapp, M. J. "Intermolecular Electron-Transfer Catalyzed on Nanoparticle Surfaces" *J. Am. Chem. Soc.* **2009**, *131*, 3798-3799.
15. Aniagyei, S. E.; Kennedy, C. J.; Stein, B.; Willits, D. A.; Douglas, T.; Young, M. J.; De, M.; Rotello, V. M.; Srisathiyanarayanan, D.; Kao, C. C.; Dragnea, B. "Synergistic Effects of Mutations and Nanoparticle Templating in the Self-Assembly of Cowpea Chlorotic Mottle Virus Capsids" *Nano Lett.* **2009**, *9*, 393-398.
14. De, M.; Rana, S.; Rotello, V. M. "Nickel Ion-Mediated Control of the Stoichiometry of His-tagged Protein-Nanoparticle Interactions" *Macromol. Biosci.* **2009**, *9*, 174-178. (***Journal cover page***).
13. De, M.; Ghosh, P.; Rotello, V. M. "Nanoparticles and Their Applications in Biology" *Adv. Mat.* **2008**, *20*, 4225-4241.
12. Ghosh, P.; Han, G.; De, M.; Kim, C. K.; Rotello, V. M. "Gold Nanoparticles in Delivery Applications" *Adv. Drug Deliv. Rev*. **2008**, *60*, 1307-1315.
11. De, M.; Rotello, V. M. "Synthetic "Chaperones": Nanoparticle-Mediated Refolding of Thermally Denatured Proteins" *Chem. Commun.* **2008**, 3504-3506. (***Cover page*** *and* ***Highlighted*** *in* ***Nat. Chem.***, ***C&EN*** *and* ***Chem. Biol.***).
10. Goicochea, N. L.; De, M.; Rotello, V. M.; Mukhopadhyay, S.; Dragnea, B. "Core-like Particles of an Enveloped Animal Virus Can Self-Assemble Efficiently on Artificial Templates" *Nano Lett.* **2007**, *7*, 2281-2290.
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