

## Dr. Rajeev S. Menon

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### Academic and Professional Background

<b>Assistant Professor (Feb. 2016- Present)</b>	Department of Chemistry, School of Chemical Sciences, Central University of Haryana, Mahendergarh, Haryana.
<b>Ramanujan Fellow (Jan. 2012- Feb. 2016)</b>	Medicinal Chemistry and Pharmacology Division, CSIR-Indian Institute of Chemical Technology, Hyderabad
<b>Research Associate (Apr. 2011-Oct. 2011)</b>	Organic Chemistry Section, CSIR-National Institute for Interdisciplinary Sciences and Technology. Trivandrum, Kerala.
<b>Australian Research Council (ARC) post-doctoral fellow (Oct. 2007-Dec. 2010)</b>	Research School of Chemistry, The Australian National University, Canberra, Australia. Research Supervisor: <b>Professor Martin Banwell</b>
<b>Alexander von Humboldt post-doctoral fellow (Feb. 2006 - Aug. 2007)</b>	The Institute for organic Chemistry, Technical University, Braunschweig, Germany. Research Supervisor: <b>Professor Henning Hopf</b>
<b>Ph.D. (2001- 2005)in Organic Chemistry</b>	CSIR-National Institute for Interdisciplinary Sciences and Technology. Trivandrum, Kerala. Degree awarded by from Kerala University, India, Supervisor: <b>Dr. G. Vijay Nair.</b>

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### Awards and Honours

- Early Career Research Award, SERB-DST, India (2017)
  - Ramanujan Fellowship from SERB-DST, India (2012)
  - Australian Research Council (ARC) post-doctoral fellowship (2008)
  - Alexander von Humboldt post-doctoral fellowship (2005)
  - CSIR Senior Research Fellowship (2002)
  - CSIR Junior Research Fellowship (2000)
  - College medal for the best graduate student (1998)
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## Areas of Expertise

- Organic Chemistry, Synthetic Methods and Total Synthesis
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## Teaching and Supervision

### Courses taught

- Structure, bonding and stereochemistry
- Pericyclic and free radical reactions
- Reagents, reactions and logic of chemical synthesis
- Medicinal Chemistry
- Organic Chemistry Laboratory

### Masters degree theses

MSc : 5 (completed)  
MPharm.: 4 (completed)

### PhD supervision

3 (ongoing)  
2 at CSIR-IICT  
&1 at CUH

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## Publications

Total number of publications:	35
As corresponding author:	8
Book chapters:	2
Total citations:	1461
h-index:	19

## Overview of publications

Journal	Impact Factor	Number
Chem. Soc. Rev.	34.09	3
Acc. Chem. Res.	22.003	1
Chem. Commun.	6.567	3
Organic Letters	6.732	6
J. Org. Chem.	4.785	2
Org. Biomol. Chem.	3.562	1
RSC Advances	3.289	1
Beilstein J. Org. Chem.	2.697	2
Synthesis	2.689	2
Tetrahedron	2.641	2
Pure and Appl. Chem.	2.492	2
Synlett	2.419	1
Tetrahedron Letters	2.379	6
ARKIVOC	1.165	1
Heterocycles	1.079	1
Natural Prod. Communications	1.000	1

## List of Publications

### a. Book Chapters

1. Intramolecular 1,3-dipolar cycloadditions of alkenes, alkynes and allenes in Comprehensive Organic Synthesis, 2nd edition, **Menon, R. S.:** Nair, V., in: Gary A. Molander and Paul Knochel (eds.), *Comprehensive Organic Synthesis, 2nd edition*, Vol 4, Oxford: Elsevier; **2014**. pp.1281-1341.
2. Modifications of the Ugi Reaction, **Menon, R. S.:** Nair, V., in *Multicomponent Reactions I, Science of Synthesis*, Ed. T. J. J. Muller, Thieme Chemistry, **2014**, pp. 503-529.

### b. As an Independent Investigator in Refereed International Journals

1. Facile synthesis of 1-benzoazepine derivatives *via* gold-catalyzed regioselective cycloisomerization reactions of *N*-(*o*-alkynylaryl)-*N*-vinyl sulfonamides; Undeela, S.; Ravikumar, G.; Nanubolu, J. B.; Singarapu, K. K.; **Menon, R. S.** *Chem. Commun.* **2016**, 52, 4824
2. Novel oxygenative and dehydrogenative [3+3] benzannulation reactions of  $\alpha,\beta$ -unsaturated aldehydes and  $\gamma$ -phosphonylcrotonates mediated by air: A regioselective synthesis of 4-hydroxybiaryl-2-carboxylates. Joshi, P. R.; Nanubolu, J. B.; **Menon, R. S.** *Org. Lett.* **2016**, 18, 752.
3. Facile synthesis of 4*H*-chromene derivatives *via* base-mediated annulation of *ortho*-hydroxychalcones and 2-bromoallyl sulfones; Thadkapally, S.; Kunjachan, A. C. and **Menon, R.S.** *Beilstein J. Org. Chem.* **2016**, 12, 16.
4. Base-mediated cyclocondensation of salicylaldehydes and 2-bromoallyl sulfones for the synthesis of 3-sulfonylchromene derivatives and their regioselective Friedel-Crafts heteroarylation reactions; Kumar, A.; Thadkapally, S and **Menon, R.S.** *J. Org. Chem.* **2015**, 80, 11048.
5. Catalyst-controlled divergence in cycloisomerisation reactions of *N*-propargyl-*N*-vinylsulfonamides: gold-catalysed synthesis of 2-sulfonylmethyl pyrroles and dihydropyridines, Undeela, S.; Thadkapally, S.; Nanubolu, J. B.; Singarapu, K. K.; **Menon, R. S.** *Chem. Commun.* **2015**, 51, 13748 (**Highlighted on the journal cover**).
6. Regioselective Synthesis of Substituted Arenes *via* Aerobic Oxidative [3+3] Benzannulation Reactions of  $\alpha,\beta$ -Unsaturated Aldehydes and Ketones, Joshi, P. R.; Undeela, S.; Reddy, D. D.; Singarapu, K. K.; **Menon, R. S.** *Org. Lett.* **2015**, 17, 1449.
7. A Convenient Synthesis of 2-Substituted Benzofurans from Salicylaldehydes, Reddy, S.; Thadkapally, S; Mamidyala, M.; Nanubolu, J. B.; **Menon, R. S.** *RSC Advances* **2015**, 5, 8199.
8. A sequential synthesis of substituted furans from aryl alkynes and ketones involving a cerium(IV) ammonium nitrate (CAN)-mediated oxidative cyclisation. Undeela, S.; Ramchandra, J, P.; **Menon, R. S.** *Tetrahedron Lett.* **2014**, 55, 5667.

### c. As co-author

9. Recent advances in *N*-heterocyclic carbene (NHC)-catalysed benzoin reactions; Menon, R. S.; Biju, A. T.; Nair, V. *Beilstein J. Org. Chem.* **2016**, 12, 444.
10. Recent advances in employing homoenolates generated by *N*-heterocyclic carbene (NHC) catalysis in carbon-carbon bond-forming reactions, Menon, R. S.; Biju, A. T.; Nair, V. *Chem. Soc. Rev.* **2015**, 44, 5040.

11. Phosphine Mediated Reaction of Cyclic 1,2-Diones and 3-Alkyl Allenoates: An Efficient Protocol for Benzannulation Applicable to the Synthesis of Polycyclic Aromatic Hydrocarbons, Jose, A.; Jayakrishnan, A. J.; Vedhanarayana, B.; **Menon, R. S.**; Varughese, S.; Suresh, E.; Nair, V. *Chem. Commun.* **2014**, *50*, 4616.
12. 1,2-Benzoquinones in Diels-Alder reactions, dipolar cycloadditions, nucleophilic additions, multicomponent reactions and more. Nair, V.; **Menon, R. S.**; Biju, A. T.; Abhilash, K. G. *Chem. Soc. Rev.* **2012**, *41*, 1050.
13. Employing Homo-enolates Generated by NHC Catalysis in Carbon-Carbon Bond-Forming Reactions: State of the Art. Nair, V.; **Menon, R. S.** Biju A. T., Sinu, C. R.; Paul, R. R.; Jose, A. and Sreekumar, V. *Chem. Soc. Rev.* **2011**, *40*, 5336.
14. N-Heterocyclic carbenecatalyzed annulation of enals and vinyl ketones: A novel synthesis of [2H]-pyranones. Nair, V.; Paul, R. R.; Seetha, L. K. C.; **Menon, R. S.**; Jose, A.; Sinu, C. R. *Tetrahedron Lett.* **2011**, *52*, 5992.
15. Perhydroazulenes-A New Class of Liquid Crystalline Materials. Hopf, H.; Hussain, Z.; **Menon, R. S.**; Raev, V.; Jones, P. G.; Pohl, L. M. *Synlett* **2011**, 1273.
16. New Methods for the Synthesis of Certain Alkaloids and Terpenoids. Banwell, M. G.; Lehmann, A. L.; **Menon, R. S.**; Willis, A. C. *Pure and Appl. Chem.* **2011**, *83*, 411.
17. Total syntheses of furanosesquiterpenes Crassifolone and Dihydrocrassifolone via a Au(I)-catalysed intramolecular Michael addition reaction. **Menon, R. S.** and Banwell, M. G. *Org. Biomol. Chem.* **2010**, *8*, 5483 (**Article advertised on front cover of the Journal**).
18. NHC-catalyzed transformation of aromatic aldehydes to acids by carbon dioxide: An unexpected reaction. Nair, V.; Varghese, V.; Paul, R. R.; Jose, A.; Sinu, C. R.; **Menon, R. S.** *Org. Lett.* **2010**, *12*, 2653.
19. Mild and Convenient Hydroarylation Reactions catalyzed by a Gold(I) complex: Efficient Syntheses of Chromenes, Benzofurans, Coumarins and Dihydroquinolines. **Menon, R. S.**; Findlay, A. D.; Bissement, A. C.; Banwell, M. G. *J. Org. Chem.* **2009**, *74*, 8901.
20. Engaging Zwitterions in Carbon-carbon and Carbon-nitrogen Bond-forming Reactions: A Promising Synthetic Strategy. Nair, V.; **Menon, R. S.**; Sreekanth, A. R.; Abhilash, N.; Biju, A. T. *Acc. Chem. Res.* **2006**, *39*, 520.
21. Asymmetric Synthesis of Quinine: A Landmark in Organic Synthesis. Nair, V.; **Menon, R. S.**; Sreekumar, V. *Natural Product Communications* **2006**, *1*, 899.
22. The reaction of diaryl-1,2-diones with triphenylphosphine and diethyl azodicarboxylate leading to N,N-dicarboethoxymonohydrazone via a novel rearrangement. Nair, V.; Biju, A. T.; Abhilash, K. G.; **Menon, R. S.**; Suresh, E. *Org. Lett.* **2005**, *7*, 2121.
23. A Pyridine-catalyzed Addition of Diaryl-1,2-diones to Dimethyl Butynedioate Leading to the Formation of 1,2-Diaroyl Dimethyl Maleates via an Unprecedented Rearrangement. Nair, V.; Pillai, A. N.; **Menon, R. S.**; Suresh, E. *Org. Lett.* **2005**, *7*, 1189.
24. Multicomponent Reactions Based on Nucleophilic Carbenes and their Applications in Organic Synthesis. Nair, V.; **Menon, R. S.**; Sreekumar, V. *Pure and Appl. Chem.* **2005**, *77*, 1191.
25. One-pot Four-component Reaction of Isocyanides, Dimethyl Acetylenedicarboxylate and Cyclobutene-1,2-diones: Synthesis of Novel Spiroheterocycles. Nair, V.; **Menon, R. S.**; Deepthi, A.; Devi, B. R.; Biju, A. T. *Tetrahedron Letters* **2005**, *46*, 1337.
26. A Novel Multicomponent Reaction Involving Isocyanide, Dimethyl Acetylenedicarboxylate (DMAD), and Electrophilic Styrenes: Facile Synthesis of Highly Substituted Cyclopentadienes. Nair, V.; **Menon, R. S.**; Beneesh, P. B.; Sreekumar, V.; Bindu, S. *Org. Lett.* **2004**, *6*, 767.

27. Novel Pyridine Catalyzed Reaction of Dimethyl Acetylenedicarboxylate (DMAD) and Arylidenemalononitriles: A Stereoselective Synthesis of Highly Substituted Buta-1,3-dienes. Nair, V.; Remadevi, B.; Vidya, N.; **Menon, R. S.**; Abhilash, N.; Rath, N. P. *Tetrahedron Lett.***2004**, *45*, 3203.
28. The Multicomponent Reaction of Dimethoxycarbene, Dimethyl Butynedioate and Electrophilic Styrenes: An Unprecedented Synthesis of Highly Substituted Cyclopentenone Acetals. Nair, V.; Beneesh, P. B.; Sreekumar, V.; Bindu, S.; **Menon, R. S.** *Tetrahedron Lett.***2004**, *45*, 201.
29. Multicomponent Reactions Involving Zwitterionic Intermediates for the Construction of Heterocyclic Systems: One-pot Synthesis of Aminofurans and Iminolactones. Nair, V.; Vinod, A.U.; N. Abhilash.; **Menon. R. S.**; Santhi, V.; Varma, L. R.; Viji, S.; Mathew, S.; Srinivas, R. *Tetrahedron*,**2003**, *59*, 10279.
30. Novel Pyridine Catalyzed Reaction of Dimethyl Acetylenedicarboxylate with Aldehydes and *N*-tosylimines: Efficient Synthesis of 2-Benzoyl fumarates and 1-Azadienes. Nair, V.; Sreekanth, A. R.; Abhilash, N.; Biju, A. T.; Remadevi, B.; **Menon, R. S.**; Rath, N. P.; Srinivas, R. *Synthesis***2003**, 1895.
31. [4+1] Cycloaddition Reactions of *o*-Thioquinones with Isocyanides: Novel Synthesis of 2-Imino-1,3-Oxathioles. Nair, V.; Mathew, B.; Vinod, A. U.; Mathen, J. S.; Ros, S.; **Menon. R. S.**; Varma, L. R.; Srinivas, R.; *Synthesis* **2003**, 662.
32. Oxidative Intramolecular Cyclization Reactions of Cinnamyl Ethers Mediated by Cerium (IV) Ammonium Nitrate (CAN): A Stereoselective Synthesis of 3,4-*trans*-Disubstituted Tetrahydrofuran Derivatives. Nair, V.; Balagopal, L.; **Menon, R.S.**; Ros, S.; Srinivas, R. *Arkivoc*, **2003**, 199.
33. [4+2] Cycloaddition Reactions of *o*-Thioquinones with Pentafulvenes: Efficient Synthesis of Benzothiazines. Nair, V.; Mathew, B.; **Menon, R. S.**; Mathew, S.; Vairamani, M. *Tetrahedron* **2002**, *58*, 3235.
34. An Efficient Multicomponent Reaction Involving the Interception of the Zwitterionic Intermediate between DMAD and Isocyanides with Some Active Methylene Compounds. Nair, V.; Vinod, A. U.; Ramesh, R.; **Menon, R. S.**; Varma, R. L.; Mathew, S.; Chiaroni, A. *Heterocycles* **2002**, *58*, 147.
35. A Facile Three-component Reaction Involving [4+1] Cycloadditions Leading to Furan Annulated Heterocycles. Nair, V.; **Menon, R. S.**; Vinod, A. U.; Viji, S. *Tetrahedron Lett.***2002**, *43*, 2293.

## Research Projects

- 1) **Early Career Research Award** granted by **DST-SERB**. Titled *Exploiting the synthetic potential of unsaturated sulfones in heterocyclic construction and alkaloid synthesis*, worth Rs. 48 Lakhs, 3 Years **(2017-20, ongoing)**
- 2) **Ramanujan Fellowship Research Grant** awarded by **SERB-DST, India**, January 2012 worth **31 Lakhs. (5 years, ongoing)**
- 3) **Fast track project** titled *"Development of Novel Gold-catalysed Carbon-carbon Bond Forming Reactions and Rearrangements"* awarded by **SERB-DST, India** worth **Rs. 16.36 Lakhs (2012-15, completed)**.