

Nareshkumar Jain, Ph.D.



Dr. Jain is a scientist, mentor, and entrepreneur with a passion for finding innovative solutions to challenging chemistry problems. He is the Founder, President, and CEO of NJ Bio, Inc. (NJ Bio) and co-founder of Amar Chemistry Pvt. Ltd., which specialize in bioconjugation, oligonucleotide conjugations for immuno-oncology applications, complex molecule synthesis, and flow chemistry. At NJ Bio and Amar Chemistry, Dr. Jain has hired, trained, and developed more than 60 scientists in last three years, and plans to double the number by the end of 2023. Under his leadership, NJ Bio has 2 years in a row won the distinguished global World ADC Award for Best Contract Research Provider and one for runner Up. Dr. Jain is also an alumni member of Robin Hood

Ventures, a leading Mid-Atlantic investment group for the pharma sector.

Prior to starting NJ Bio, in 2009, Dr. Jain founded a chemistry based CRO, The Chemistry Research Solution LLC (TCRS), serving for 6 years as Managing Director. During that time, he grew the company to 50 employees, worked with more than 200 leading biopharmaceutical clients, and secured long-term contracts with the National Cancer Institute (NCI). In 2015, Abzena plc acquired TCRS, with Dr. Jain serving as Senior Vice President and Global Head of Chemistry.

Dr. Jain started his pharma industry career at Johnson & Johnson, where he gained about 10 years of medicinal chemistry experience while advancing new drug molecules from hits to leads and into clinical trials. Among his notable chemistry achievements are the total syntheses of the complex antibiotic natural products vancomycin and rutamycin. Over the past three decades, Dr. Jain has co-authored more than 60 publications, patents, and book chapters in medicinal and synthetic chemistry. His work has been cited more than 2,700 times, and his publications have an overall h-index of 27.

Dr. Jain received his Ph.D. from Boston University and was a Post-Doctoral Research Fellow at The Scripps Research Institute in La Jolla, California. In 2017, Dr. Jain graduated from the Advanced Management Program at The Wharton School of the University of Pennsylvania. He recently received the Distinguished Alumnus Award from ICT (formally UDCT) in Mumbai.

Education

Wharton Advanced Management Program
The Wharton School, University of Pennsylvania, Philadelphia, PA

2017

Ph.D. (Synthetic Organic Chemistry) Advisor: Prof. J. S. Panek Thesis: Total Synthesis of Polypropionate-Derived Natural Products Boston University, Boston, MA	1997
M.S. (Medicinal and Natural Products) Advisor: Prof. S.K. Pradhan Bombay University (UDCT), Mumbai, India	1991
B.S. (Pharmacy) Bombay University (UDCT), Mumbai, India	1986

Additional Training

SBA Emerging Leaders Initiative, e-200 USA Post-Doctoral Fellow	2012
Total Synthesis of Vancomycin and Vancomycin Aglycon Advisor: Prof. K.C. Nicolaou The Scripps Research Institute, La Jolla, CA	1997-1999

Experience

President and CEO, NJ Biopharmaceuticals LLC, North Brunswick, NJ Co-Founder, Amar Chemistry Pvt. Ltd., Mumbai, India Member, Robin Hood Ventures, Philadelphia, PA	2017-Present
Senior Vice President and Global Head of Chemistry Abzena plc, Bristol, PA	2015-2017
Founder and Managing Director The Chemistry Research Solution, Bristol, PA	2009-2015
Principal Scientist, Senior Scientist, Scientist Central Medicinal Chemistry, Drug Discovery Johnson & Johnson, NJ & PA	1999-2008

Accomplishments

NJ Bio/Amar Chemistry

- Work on projects for numerous companies around the world
- Hired, trained, and developed more than 60 scientists in the last 3 years

Robin Hood Ventures

- As an angel investor, provide capital to help dynamic entrepreneurs build companies
- Mentor and advise up-and-coming entrepreneurs
- Leverage cumulative network expertise and experience so companies can achieve their maximum potential for each portfolio

Abzena plc

- Directed more than 50 scientists at 2 global locations
- Recruited, retained, and advised talented, experienced, PhD-level scientists
- Built over \$10 M in combined chemistry revenue in 2016 through global business development activity

The Chemistry Research Solution (TCRS)

- Developed the business from \$30K (2009) to \$1M (2011) to over \$7M (2016)
- Grew family-owned company from two employees (2009) to 45 employees (2016)
- Managed several groups of scientists working on antibody-drug conjugate chemistry under long-term contracts with global biotech and pharmaceutical companies
- Designed and built a state-of-the-art R&D laboratory facility with modern equipment and engineering control for antibody drug conjugates
- Built a valuable clientele with excellent rate of repeat business that led to multiyear contracts

Johnson & Johnson

- Developed numerous molecules from hits to leads and into clinical trials, including...
 - A novel, orally bioavailable CCR2 antagonist from lead generation to lead optimization for inflammation, diabetes, rheumatoid arthritis, and obesity
 - A novel backup new chemical entity (NME), JNJ 19398990, for treatment of hot flush and urogenital problems associated with post-menopausal syndrome, with antagonistic activity in breast and uterine tissue
 - A novel series of staurosporine analogs as selective kinase inhibitors with better bioavailability
 - Novel oxa-steroid derived ligands as selective progesterone modulators with in-vivo efficacy comparable to mifepristone with diminished glucocorticoid activity
 - Preclinical study completed and recommended for first-in-human

- Several medicinal chemistry routes for lead NME, JNJ 10284482
 - Phase 1 and Phase 2a clinical studies completed
- Several lead SERMs, e.g., chromenes, oxa-steroidal and heterocyclic derivatives
- Multiple series of ligands for potassium channel openers with tissue specificity
- A new class of ligands selective to ER β receptors

Publications

- 1) Dugal-Tessier, J.; Thirumalairajan, S.; Jain, N. Antibody-Oligonucleotide Conjugates: A Twist to Antibody-Drug Conjugates. *J. Clin. Med.* (2021), 10, 838. <https://doi.org/10.3390/jcm10040838>
- 2) Smith, Sean W.; Jammalamadaka, Vasu; Borkin, Dmitry; Zhu, Jianyu; Degrado, Sylvia J.; Lu, Jennifer; Huang, Jianqing; Jiang, Ying-Ping; Jain, Nareshkumar; Junutula, Jagath R. Design and Synthesis of Isoquinolidinobenzodiazepine Dimers, a Novel Class of Antibody-Drug Conjugate Payload Medicinal Chemistry Letters (2018), 9(1), 56-60. [10.1021/acsmchemlett.7b00436](https://doi.org/10.1021/acsmchemlett.7b00436)
- 3) Seaman, Steven; Zhu, Zhongyu; Saha, Saurabh; Zhang, Xiaoyan M.; Yang, Mi Young; Hilton, Mary Beth; Morris, Karen; Szot, Christopher; Morris, Holly; Swing, Deborah A.; Jain, Nareshkumar et al Cancer Cell (2017), 31(4), 501-515.e8. [10.1016/j.ccell.2017.03.005](https://doi.org/10.1016/j.ccell.2017.03.005)
- 4) Dimitrov, Dimiter; Feng, Yang; Sussman, Robin; Maris, John; Smith, Sean; Degrado, Sylvia; Jain, Nareshkumar; Zhu, Zhongyu, Antibodies conjugated through glycans to small molecule drugs: Stability and specific killing of cancer cells Abstracts of Papers, 251st ACS National Meeting & Exposition, San Diego, CA, United States, March 13-17, 2016 (2016), CARB-98
- 5) Nareshkumar Jain, Sean W. Smith, Sanjeevani Ghone, Bruce Tomczuk, Pharm Res. Current ADC Linker Chemistry (2015); 32(11): 3526–3540. [10.1007/s11095-015-1657-7](https://doi.org/10.1007/s11095-015-1657-7)
- 6) Nareshkumar Jain, Jiayi Xu, Ramesh M. Kanojia, Fuyong Du, Guo Jian-Zhong, Emmanuel Pacia, Muh- Tsann Lai, Amy Musto, George Allan, Michael Reuman, Xun Li, DoWon Hahn, Martin Cousineau, Sean Peng, David Ritchie, Ronald Russell, Scott Lundeen, and Zhihua Sui, "Identification and Structure- Activity Relationships of Chromene-Derived Selective Estrogen Receptor Modulators for Treatment of Postmenopausal Symptoms" *J. Med. Chem.* (2009), 52(23), 7544-7569. [10.1021/jm900146e](https://doi.org/10.1021/jm900146e)
- 7) Jain, Nareshkumar; Allan, George; Linton, Olivia; Tannenbaum, Pamela; Chen, Xin; Xu, Jun; Zhu, Peifang; Gunnet, Joseph; Demarest, Keith; Lundeen, Scott; Sui, Zhihua. Synthesis and SAR study of novel pseudo-steroids as potent and selective progesterone receptor modulators. *Bioorganic & Medicinal Chemistry Letters* (2009), 19(14), 3977-3980. [10.1016/j.bmcl.2009.01.095](https://doi.org/10.1016/j.bmcl.2009.01.095)
- 8) Xun Li, Ronald K. Russell, Andra's Horva'th, Nareshkumar Jain, Dominique Depre', Dominic Ormerod, Wim Aelterman, and Zhihua Sui; Synthesis of Tetracyclic Heterocompounds as Selective Estrogen Receptor Modulators. Part 3. Development of an Acid-Catalyzed Racemization Process for (S)-2,8-(Dimethoxy)-5-{4-[2-(1-piperidinyl)ethoxy]-phenyl}-11,12-dihydro-5H-6,13dioxabenz[3,4]cyclohepta[1,2-a]naphthalene, *Organic Process Research & Development* 2009, 13, 102–105. <https://doi.org/10.1021/op800237y>
- 9) Jain, Nareshkumar; Du, Fuyong; Reuman, Michael; Xu, Jiayi; Guo, Jian-Zhong; Pacia, Emmanuel; Lai, Muh-Tsann; Musto, Amy; Allan, George; Hahn, DoWon; Lundeen, Scott; Rusell, Ronald; Ritchie, David; Cousineau, Martin; Peng, Sean; Sui, Zhihua. Discovery of a Chromene-based novel SERM for treatment of postmenopausal syndrome. Abstracts of Papers, 236th ACS National Meeting, Philadelphia, PA, United States, August 17-21, 2008 (2008), MEDI-312. CODEN: 69KXQ2 AN 2008:953785
- 10) Jain, Nareshkumar; Xu, Jiayi; Kanojia, Ramesh M.; Du, Fuyong; Guo, Jian-Zhong; Pacia, Emmanuel; Lai, Muh-Tsann; Musto, Amy; Allan, George; Hahn, DoWon; Lundeen, Scott; Sui,

- Zhihua. Identification and structure-activity relationships of novel chromene-derived selective estrogen receptor modulators. Abstracts of Papers, 236th ACS National Meeting, Philadelphia, PA, United States, August 17-21, 2008 (2008), MEDI-311. CODEN: 69KXQ2 AN 2008:953784 CAPLUS.
- 11) Jain, Nareshkumar; Kanojia, Ramesh M.; Du, Fuyong; Guo Jian-Zhong; Pacia, Emmanuel; Lai, Muh- Tsann; Musto, Amy; Allan, George; Hahn, DoWon; Lundeen, Scott G.; Sui, Zhihua. Bisbenzopyran derivatives as delective estrogen receptor modulators with unique pharmacological profiles. Abstracts of Papers, 236th ACS National Meeting, Philadelphia, PA, United States, August 17-21, 2008 (2008), MEDI-310. CODEN: 69KXQ2 AN 2008:953783 CAPLUS
 - 12) Jain, Nareshkumar; Allan, George; Linton, Olivia; Tannenbaum, Pamela; Chen, Xin; Xu, Jun; Zhu, Peifang; Gunnet, Joseph; Demarest, Keith; Lundeen, Scott; Sui, Zhihua. Synthesis and SAR study of novel pseudo-steroids as potent and selective progesterone receptor modulators. Abstracts of Papers, 236th ACS National Meeting, Philadelphia, PA, United States, August 17-21, 2008 (2008), MEDI-309. CODEN: 69KXQ2 AN 2008:953782 CAPLUS.
 - 13) Kang, Fu-An; Chen, Xin; Jain, Nareshkumar; Allan, George; Tannenbaum, Pamela; Lundeen, Scott; Sui, Zhihua. Insight from molecular modeling into different conformation and SAR of natural steroids and unnatural 7-oxa-steroids. *Bioorganic & Medicinal Chemistry Letters* (2008), 18(13), 3687-3690. CODEN: BMCLE8 ISSN:0960-894X. CAN 149:259645 AN 2008:727283 CAPLUS. <https://doi.org/10.1016/j.bmcl.2008.05.070>
 - 14) Xia Mingde; Hou Cuifen; Demong Duane E; Pollack Scott R; Pan Meng; Brackley James A; Jain Nareshkumar; Gerchak Chrissy; Singer Monica; Malaviya Ravi; Matheis Michele; Olini Gil; Cavender Druie; Wachter Michael Synthesis, Structure-Activity Relationship and in Vivo Antiinflammatory Efficacy of Substituted Dipiperidines as CCR2 Antagonists. *Journal of medicinal chemistry* (2007), 50(23), 5561-3. [10.1021/jm070902b](https://doi.org/10.1021/jm070902b)
 - 15) Li, Xun; Reuman, Michael; Russell, Ronald K.; Youells, Scott; Beish, Sandra; Branum, Shawn; Jain, Nareshkumar; Sui, Zhihua. Synthesis of Tetracyclic Heterocompounds as Selective Estrogen Receptor Modulators. Part 2. Process Improvement for Scale-Up Of 2,5,8-Substituted 11,12-Dihydro-5H-6,13-dioxabenz[3,4]cyclohepta-[1,2-a]naphthalene Derivatives. *Organic Process Research & Development* (2007), 11(4), 731-738. <https://doi.org/10.1021/op700061x>
 - 16) Kang, Fu-An; Guan, Jihua; Jain, Nareshkumar; Allan, George; Linton, Olivia; Tannenbaum, Pamela; Chen, Xin; Xu, Jun; Zhu, Peifang; Gunnet, Joseph; Demarest, Keith; Lundeen, Scott; Sui, Zhihua. Parallel synthesis and SAR study of novel oxa-steroids as potent and selective progesterone receptor antagonists. *Bioorganic & Medicinal Chemistry Letters* (2007), 17(9), 2531-2534. [10.1016/j.bmcl.2007.02.013](https://doi.org/10.1016/j.bmcl.2007.02.013)
 - 17) Li, Xun; Reuman, Michael; Russell, Ronald K.; Adams, Richard; Ma, Robert; Beish, Sandra; Branum, Shawn; Youells, Scott; Roberts, Jerry; Jain, Nareshkumar; Kanojia, Ramesh; Sui, Zhihua. Synthesis of Tetracyclic Heterocompounds as Selective Estrogen Receptor Modulators. Part 1. Process Development for Scale-up of 2,5,8-Substituted 5,11-Dihydrochromeno[4,3-c]chromene Derivatives. *Organic Process Research & Development* (2007), 11(3), 414-421. <https://doi.org/10.1021/op700020f>
 - 18) Kang, Fu-An; Allan, George; Guan, Jihua; Jain, Nareshkumar; Linton, Olivia; Tannenbaum, Pamela; Xu, Jun; Zhu, Peifang; Gunnet, Joseph; Chen, Xin; Demarest, Keith; Lundeen, Scott; Sui, Zhihua. Synthesis and identification of novel oxa-steroids as progesterone receptor antagonists. *Bioorganic & Medicinal Chemistry Letters* (2007), 17(4), 907-910. CODEN: BMCLE8 ISSN:0960-894X. CAN 146:359032 AN 2007:129876. <https://doi.org/10.1016/j.bmcl.2006.11.062>
 - 19) Kang, Fu-An; Jain, Nareshkumar; Sui, Zhihua. Enantioselective synthesis of (8S,13S,14R)-7-oxa-estra-4,9-diene-3,17-dione. *Tetrahedron Letters* (2006), Volume Date 2007, 48(2), 193-

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- 21) Chen, Ningyi; Jain, Nareshkumar; Xu, Jiayi; Reuman, Michael; Li, Xun; Russell, Ronald K.; Sui, Zhihua. Synthesis of novel tetracyclic chromenes through carbanion chemistry of 4-methyl coumarins. *Tetrahedron Letters* (2006), 47(33), 5909-5913.
<https://doi.org/10.1016/j.tetlet.2006.06.047>
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<https://doi.org/10.1021/jm060353u>
- 23) Li, Xun; Jain, Nareshkumar; Russell, Ronald K.; Ma, Robert; Branum, Shawn; Xu, Jiayi; Sui, Zhihua. Development of a Scalable Synthetic Process for Selective Bromination of 4-Methyl-3,7-Substituted Coumarins. *Organic Process Research & Development* (2006), 10(2), 354-360.
<https://doi.org/10.1021/op050242p>
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<https://doi.org/10.1016/j.tetlet.2005.10.150>
- 25) Xu, Jiayi; Jain, Nareshkumar; Sui, Zhihua, Halogen-magnesium exchange of m- and p-iodo or bromo-arenes bearing ortho-directing groups through ate complexes, *Tetrahedron Letters* (2004), 45(34), 6399-6402. <https://doi.org/10.1016/j.tetlet.2004.07.005>
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- 27) Panek, James S.; Jain, Nareshkumar F., Total Synthesis of Rutamycin B and Oligomycin C., *Journal of Organic Chemistry* (2001), 66(8), 2747-2756. <https://doi.org/10.1021/jo001767c>
- 28) Schaus, Jennifer V.; Jain, Nareshkumar; Panek, James S., Asymmetric synthesis of homoallylic amines and functionalized pyrrolidines via direct amino-crotylation of in situ generated imines, *Tetrahedron* (2000), 56(52), 10263-10274. [https://doi.org/10.1016/S0040-4020\(00\)00870-X](https://doi.org/10.1016/S0040-4020(00)00870-X)
- 29) Nicolaou, K. C.; Mitchell, Helen J.; Jain, Nareshkumar F.; Bando, Toshikazu; Hughes, Robert; Winssinger, Nicolas; Natarajan, Swaminathan; Koumbis, Alexandros E., Total synthesis of vancomycin- part 4: attachment of the sugar moieties and completion of the synthesis, *Chemistry--A European Journal* (1999), 5(9), 2648-2667. [https://doi.org/10.1002/\(SICI\)1521-3765\(19990903\)5:9<2648::AID-CHEM2648>3.0.CO;2-Q](https://doi.org/10.1002/(SICI)1521-3765(19990903)5:9<2648::AID-CHEM2648>3.0.CO;2-Q)
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- 31) Nicolaou, K. C.; Boddy, Christopher N. C.; Li, Hui; Koumbis, Alexandros E.; Hughes, Robert; Natarajan, Swaminathan; Jain, Nareshkumar F.; Ramanjulu, Joshi M.; Brase, Stefan; Solomon, Michael E., Total synthesis of vancomycin-part 2: retrosynthetic analysis, synthesis of amino acid building blocks and strategy evaluations, *Chemistry--A European Journal* (1999), 5(9), 2602-2621. [https://doi.org/10.1002/\(SICI\)1521-3765\(19990903\)5:9<2602::AID-CHEM2602>3.0.CO;2-X](https://doi.org/10.1002/(SICI)1521-3765(19990903)5:9<2602::AID-CHEM2602>3.0.CO;2-X)
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- 36) Beresis, Richard T.; Solomon, Jason S.; Yang, Michael G.; Jain, Nareshkumar F.; Panek, James S., Synthesis of chiral (E)-crotylsilanes: [3R- and 3S-]-(4E)-methyl 3-(dimethylphenylsilyl)-4-hexenoate, *Organic Syntheses* (1998), 75, 78-88. <https://doi.org/10.1002/0471264180.OS075.10>
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Book Chapters

- 1) Jain, N. F.; Masse, C. E. Synthesis from carboxylic acids and derivatives. *Science of Synthesis* (2006), 20b 711-723. CODEN: SSCYJ9 AN 2007:111474 CAPLUS
- 2) Jain, N. F.; Masse, C. E. Synthesis from carboxylic acid derivatives. *Science of Synthesis* (2006), 20a 75-92. CODEN: SSCYJ9 AN 2006:1316875
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Patents and Patent Applications

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- 2) Traverse, John Fitzgerald; Jain, Nareshkumar; Thirumalairajan, Srinath; Ghone, Sanjeevani Preparation of maytansinol Patent: WO2020/180709; (2020); (A1) View in Reaxys
- 3) Process for and intermediates in the kilogram-scale preparation of the antibacterial agent TXA709 and its mesylate salt, Ghone, Sanjeevani; Kang, Fu-An; Jain, Nareshkumar; Parhi, Ajit K.; Ponnaiah, Ravi; Soni, Anil Kumar; Athunuri, Siva Rami Reddy; Korrakuti, Thrisulapani; Seelam, Pullarao, World Intellectual Property Organization, WO2018183917 A1 2018-10-04 Language: English, Database: CAPLUS
- 4) Preparation of novel maytansinoid compounds and their conjugates as cytotoxic agents Jain, Nareshkumar; Ghone, Sanjeevani; Smith, Sean; Glassford, Ian; Degrado, Sylvia J.; Kang, Fu-An; Zhao, Senzhi World Intellectual Property Organization, WO2018051109 A1 2018-03-22 | Language: English, Database: CAPLUS
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