Curriculum Vitae

Arote Rohidas B., Ph.D.

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I. EDUCATION

2009	Ph.D.	Seoul National University, Republic of Korea
2002	M.S.	University of Mumbai, India
2000	B.S.	University of Pune, India

II. PROFESSIONAL EXPERIENCE

2022-present	Professor, Center for Nano and Materials Research, Jain University, Bangalore, Karnataka, India
2021 –2022	Professor, College of Pharmaceutical Sciences, Dayananda Sagar University, Bangalore, Karnataka, India
2017-2020	Associate Professor, SeoulNational University, Seoul, Republic of Korea Ranking: 29th **World University Ranking**
2010-2016	Assistant Professor, SeoulNational University, Seoul, Republic of Korea
2009-2010	Research Associate, Seoul National University, Seoul, Republic of Korea
2007-2009	Graduate Research Assistant, Seoul NationalUniversity, Seoul, Republic of Korea

III. RESEARCH INTERESTS

Gene Therapy, Drug Delivery, Biomaterials, Biomedical Engineering, Pharmacology and toxicology and Theranostics (Cancer, Immune, and Regenerative therapy).

IV. RESEARCH GRANTS AND SUPPORT

Sr. No.	Project Title	Sponsoring Agency	Budget (1000 USD)	Status
1	Development of novel genedelivery systems for oral cancer	SNU R & D Foundation	30	2011-2014
2	Oromaxillofacial Dysfunction Research Center for Elderly (MRC) Grant	National Research Foundation	250	2012-2017
3	Hyperosmotic, non-viral polymeric gene delivery systems for oral cancer with high unmet medical need	SNU R & D Foundation	20	2016-2018
4	Novel sugar alcohol based transporters as a gene carrierfor liver cancer therapy	National Research Foundation	270	2016-2019
5	Creative Pioneering Researchgrant by Seoul National University	SNU R & D Foundation	900	2017-2026

V. PUBLICATIONS

*Corresponding author, **Co-Corresponding author [IF = impact factor]

1. Vijayakumar Mayakrishnan, Janani Balakarthikeyan, Priya Kannappan, and Ramesh Thiyagarajan, **Rohidas B Arote***. Supramolecular nonovehicles co-delivering Cetuximab and Andrographolide for enhanced tumour immunotherapy in colorectal cancer treatment", *Cancer Communications* (Under Communication).

2. Nisarga R, Pandit P, Sangshetti JN, **Arote RB*** Microfluidics in bioanalytical chemistry, IN: "Microfluidics-aided technologies: Platforms for next generation biological applications", Paperback ISBN: 9780323955331, Academic Press (Under Communication).

3. Pathan SK, Shelar A, Deshmukh S, Patil RB, Patil RH, Chhajed SS, Sangshetti JN*, **Arote RB***. Essential Cues for Inhibition of Biofilm Formation – An Attractive Target for Anti-infective Drug Discovery, *Drug Discovery Today* (Under Communication)

4. Hong SJ, Ahn MH, Lee YW, Sangshetti JN, **Arote RB*,** Development of novel laminarin based sugar nanoplexes for cancer gene therapy. *Communication Materials*. (Under Communication).

5. Ahn MH, Hong SJ, Lee YW, Sangshetti JN, **Arote RB*,** Suppression of tumor growth in liver cancer mouse by delivering siOPA1 with polylactitol based transporter system. *Molecular Cancer*. (Under Communication).

6. Pathan SK, Shelar A, Deshmukh S, Akber AA, Irfan AA, Patil RB, **Arote RB,** Sangshetti JN, Exploring Antibiofilm Potential of Some New Imidazole Analogues against C. albicans: Synthesis, Antifungal Activity, Molecular docking and Molecular dynamics studies, Journal of Biomolecular Structure and Dynamics, 2024 Jan 4:1-17 [IF: 4.4].

7. Cho Kye Soo, Kim Sanghwa, Chun Hyung Bin, Cheon Jae Hee, Cho Myung-Haing, Lee Ah Young**, **Arote RB****, Efficient gene transfection to lung cancer cells via Folate-PEI-Sorbitol gene transporter*. PLOSE One*. 2022; 17(5), e0266181. (IF: 3.24)

8. Damale MG, Patil R, Ansari SA, Alkahtani HM, Ahmed S, **Arote R**, Sangshetti J, Insilico structure based drug design approach to find potential hits in ventilator-associated pneumonia caused by Pseudomonas aeruginosa. *Computers in Biology and Medicine*. 2022; 146, 105597 (IF: 4.589)

9. Khan PS, Sangshetti JN, Patil R, Patil R, Chaskar MG, **Arote RB***, Recent Advances in BRAF Inhibitors as Anticancer Agents, Bioorganic Chemistry. 2022; 120(26):105597 [IF: 5.275].

10. Choi BM, Ahn MH, Hong SJ, Barcellon EE, Sangshetti JN, Lee SJ**, **Arote RB**** Novel, biodegradable poly (ester amine) based nanocarrier to improve microglial delivery of nucleic acids. *RSC Advances.* 2021; 11, 36792-36800 [IF: 3.5].

11. Damale MG, Pathan SK, Shinde DB, Patil RH, **Arote RB**, Sangshetti JN, Insights of tankyrases: A novel target for drug discovery, *Eur J Med Chem*. 2020; 207:112712. [IF: 5.572]

12. Hong SJ, Ahn MH, Sangshetti JN, **Arote RB***, Sugar alcohol-based polymeric gene carriers: synthesis, properties and gene therapy applications, *Acta Biomater.* 2019; 97:105-115. [IF: 6.638]

13. Sangshetti J, Pathan SK, Patil R, Akber Ansari S, Chhajed S, **Arote R**, Shinde DB, Synthesis and biological activity of structurally diverse phthalazine derivatives: A systematic review, *Bioorg Med Chem*. 2019;27(18):3979-3997. [IF: 2.802]

14. Damale MG, Patil RB, Ansari SA, Alkahtani HM, Almehizia AA, Shinde DB, **Arote R**, Sangshetti J, Molecular docking, pharmacophore based virtual screening and molecular dynamics studies towards the identification of potential leads for the management of H. pylori, *RSC Advances.* 2019; 9 (45): 26176-26208. [IF: 3.049]

15. Hong SJ, Cho, KS, Ahn MH, Pal Sukdeb, Choung PH, Sangshetti JN, **Arote RB***, Targeted delivery of siRNA therapeutics using ligand mediated biodegradable polymeric nanocarriers, *Curr Pharm Design*. 2018; 24 (16): 1788-1800. [IF = 3.05]

16. Jadhav N, Ahn MH, Sangshetti JN, **Arote RB***, Efficient siRNA delivery using osmotically active and biodegradable poly(ester amine)s, *Advanced Material Letters.* 2018; 9 (8):590-593. [IF= 1.46]

17. Hong SJ, Ahn MH, Sangshetti J, Choung PH, **Arote RB***. Sugar-based gene delivery systems: Current knowledge and new perspectives, *Carbohydrate Polymers*. 2018; 181:1180-1193. [IF = 4.81]

18. Sangshetti JN, Deshpande M, Zaheer Z, Shinde DB, **Arote R***. Quality by design approach: Regulatory need, *Arab J Chem*. 2017; 10(2): S3412–25. [IF: 4.55]

19. Sangshetti, JN, Shinde DB, Kulkarni, A. **Arote R*.** Two decades of antifilarial drug discovery: a review***,*** *RSC Advances.* 2017**;** 7(33): 20628-20666. [IF = 3.11]

20. Khan FA, Patil RH, Patil M, **Arote R**, Shinde DB, Sangshetti JN. Bacterial Peptide Deformylase Inhibition of Tetrazole-Substituted Biaryl Acid Analogs: Synthesis, Biological Evaluations, and Molecular Docking Study. *Arch Pharm (Weinheim)*. 2016; 349(12):934-943. [IF = 1.99]

21. Khan FA, Jadhav KS, Patil RH, Shinde DB, **Arote RB****, Sangshetti JN**, Biphenyl tetrazole-thiazolidinediones as novel bacterial peptide deformylase inhibitors: Synthesis, biological evaluations and molecular docking study. *Biomed Pharmacother*. 2016; 20(83): 1146-1153. [IF = 2.33]

22. Kim YD, Park TE, Singh B, Cho KS, Sangshetti JN, Choi YJ, **Arote RB****, Cho CS**.Efficient gene transfection to liver cells by a multifunctional polylactitol-based gene transporter

via cellular regulation, *J. Mater. Chem. B*, 2016, 4, 2208-2218. [IF = 4.73]

23. Pofali PA, Singh B, Dandekar P, Jain RD, Maharjan S, Choi YJ, **Arote RB****, Cho CS**. Drug-conjugated polymers as gene carriers for synergistic therapeutic effect. *J Biomed Mater Res B Appl Biomater*. 2016; 104(4): 698-711. [IF: 2.31]

24. Kim YD, Pofali P, Park TE, Singh B, Cho K, Maharjan S, Dandekar P, Jain R, Choi YJ, **Arote R**, Cho CS, Gene therapy for bone tissue engineering, *Tissue Engineering and Regenerative Medicine*, 2016; 13(2) :111-125.[IF: 1.17]

25. Kim YD, Park TE, Singh B, Maharjan S, Choi YJ, Choung PH, **Arote RB****, Cho CS**. Nanoparticle-mediated delivery of siRNA for effective lung cancer therapy. *Nanomedicine (Lond)*. 2015; 10(7): 1165-88. [IF: 5.41]

26. Sangshetti JN, Kalam Khan FA, Kulkarni AA, **Arote R**, Patil RH. Antileishmanial drug discovery: Comprehensive review of the last 10 years, *RSC Advances*. 2015; 5(41): 32376-32415. [IF: 3.84]

27. Kim YD, Park TE, Singh B, Maharjan S, Cho KS, Park KP, Choi YJ, **Arote RB****, Cho CS**. Image-Guided Nanoparticle-Based siRNA Delivery for Cancer Therapy. *Curr Pharm Des*. 2015; 21(31):4637-56. [IF: 3.45]

28. Shin YH, Namkoong E, Choi S, Bae JS, Jin M, Hwang SM, **Arote R**, Choi SY, Park K. Capsaicin regulates the NF-κB pathway in salivary gland inflammation. *J Dent Res*. 2013; 92(6): 547-52. [IF: 4.12]

29. Shin JY, Lim HT, Minai-Tehrani A, Noh MS, Kim JE, Kim JH, Jiang HL, **Arote R**, Kim DY, Chae C, Lee KH, Kim MS, Cho MH. Aerosol delivery of beclin1 enhanced the anti- tumor effect of radiation in the lungs of K-rasLA1 mice. *J Radiat Res*. 2012; 53(4):506- 15. [IF: 1.68]

30. Islam MA, Yun CH, Choi YJ, Shin JY, **Arote R**, Jiang HL, Kang SK, Nah JW, Park IK, Cho MH, Cho CS. Accelerated gene transfer through a polysorbitol-based transporter mechanism. *Biomaterials*. 2011; 32(36): 9908-24. [IF: 7.80]

31. Islam MA, Jiang HL, Quan JS, **Arote RB,** Kang ML, Yoo HS, Yun CH, Choi YJ, Cho CS. Mucoadhesive and pH-sensitive thiolated Eudragit microspheres for oral delivery of Pasteurella multocida antigens containing dermonecrotoxin. *J Nanosci Nanotechnol*. 2011; 11(5): 4174-81. [IF: 1.30]

32. **Arote RB**, Jiang HL, Kim YK, Cho MH, Choi YJ, Cho CS. Degradable poly(amido amine)s as gene delivery carriers. *Expert Opin Drug Deliv*. 2011; 8(9): 1237-46. [IF: 4.40]

33. Jiang HL, Lim HT, Kim YK, **Arote R**, Shin JY, Kwon JT, Kim JE, Kim JH, Kim D, Chae C, Nah JW, Choi YJ, Cho CS, Cho MH. Chitosan-graft-spermine as a gene carrier in vitro and in vivo, *Eur J Pharm Biopharm*. 2011; 77(1): 36-42. [IF: 4.30]

34. Kim YK, Kwon JT, Choi JY, Jiang HL, **Arote R**, Jere D, Je YH, Cho MH, Cho CS, Suppression of tumor growth in xenograft model mice by programmed cell death 4 gene delivery using folate-PEG-baculovirus. *Cancer Gene Ther*. 2010; 17(11): 751-60. [IF: 3.15]

35. **Arote RB**, Jere D, Cho CS, Structure activity relationship of poly(ester amine)s as gene carriers. *Materials Technol*. 2010; 25, 196-204. [IF: 0.59]

36. Jiang HL, Kim YK, Lee SM, Park MR, Kim EM, Jin YM, **Arote R**, Jeong HJ, Song SC, Cho MH, Cho CS, Galactosylated chitosan-g-PEI/DNA complexes-loaded poly(organophosphazene) hydrogel as a hepatocyte targeting gene delivery system. *Arch Pharm Res*. 2010; 33(4): 551-6. [IF: 1.07]

37. Park IK, Singha K, **Arote RB**, Choi YJ, Kim WJ, Cho CS, pH sensitive polymers as gene carriers. *Macromol Rapid Comm*. 2010; 31(13): 1122-1133. [IF: 3.91]

38. **Arote RB**, Yoo MK, Kim TH, Jere D, Jiang HL, Kim YK, Cho MH, Cho CS, Folate Conjugated poly (ester amine) for lung cancer therapy, *J Nanosci Nanotechnol*. 2010; 10(5): 3294-8. [IF: 1.93]

39. **Arote RB**, Hwang SK, Lim HT, Kim TH, Jere D, Jiang HL, Kim YK, Cho MH, Cho CS, Improved therapeutic response in a xenograft mice model for TAM67 gene via folate receptor mediated endocytosis, *Biomaterials* 2010; 31(8): 2435-2445. [IF: 7.37]

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41. **Arote RB**, Lee ES, Hwang SK, Jere D, Jiang HL, Kim YK, Choi YJ, Cho MH, Cho CS, Efficient gene delivery with osmotically active, hyperbranched poly (ester amine)s, *Bioconjug Chem*. 2009; 20(12):2231-41. [IF: 4.58]

42. Jiang HL, Xu CX, Kim YK, **Arote R**, Jere D, Cho MH, Cho CS, The suppression of lung tumorigenesis by aerosol-delivered folate-chitosan-graftpolyethylenimine/Akt1 shRNA complexes through the Akt signaling pathway, *Biomaterials* 2009; 30(29):5844-52. [IF: 7.34]

43. Jere D, Jiang H, **Arote R**, Kim Y, Choi Y, Cho M, Akaike T, Cho C Degradable polyethylenimines as DNA and small interfering RNA carriers. *Expert Opin Drug Deliv*. 2009; 6(8): 827-34. [IF: 3.45]

44. Jere D, Jiang HL, Kim YK, **Arote R**, Choi YJ, Yun CH, Cho MH, Cho CS. Chitosan-graft-polyethylenimine for Akt1 siRNA delivery to lung cancer cells. *Int J Pharm*. 2009; 13:378(1-2):194-200. [IF: 3.06]

45. Jiang HL, Kim YK, **Arote R**, Jere D, Quan JS, Yu JH, Choi YJ, Nah JW, Cho MH, Cho CS. Mannosylated chitosan-graft-polyethylenimine as a gene carrier for Raw 264.7 cell

targeting. *Int J Pharm*. 2009; 375(1-2):133-139. [IF: 3.06]

46. **Arote RB**, Jere D, Jiang HL, Kim YK, Cho MH, Cho CS, Biodegradable poly(ester amine)s for gene delivery applications. *Biomed mater*. 2009; 4(4): 44102. [IF: 1.23]

47. Jere D, **Arote R**, Jiang HL, Kim YK, Cho MH, Cho CS, Bioreducible polymers for efficient gene and siRNA delivery. *Biomed mater*. 2009; 4(2):25020. [IF: 1.23]

48. Kim YK, Choi JY, Jiang HL, **Arote R**, Jere D, Cho MH, Je YH, Cho CS. Hybrid of baculovirus and galactosylated PEI for efficient gene carrier. *Virology*. 2009; 387(1):89-97. [IF: 3.54]

49. Jere D, Kim JE, **Arote R**, Jiang HL, Kim YK, Choi YJ, Yun CH, Cho MH, Cho CS. Akt1 silencing efficiencies in lung cancer cells by sh/si/ssiRNA transfection using a reductable polyspermine carrier. *Biomaterials*. 2009; 30(8): 1635-47. [IF: 6.67]

50. **Arote RB**, Hwang SK, Yoo MK, Jere D, Jiang HL, Kim YK, Choi YJ, Nah JW, Cho MH, Cho CS. Biodegradable poly(ester amine) based on glycerol dimethacrylate and polyethylenimine as a gene carrier. *J Gene Med*. 2008; 10(11):1223-35. [IF: 3.14]

51. **Arote RB**, Jere D, Cho CS, Biodegradable polyester derivatives as gene carrier. *Current Trends in Polymer Science*. 2008; 12: 1-17.

52. Jiang HL, Kwon JT, Kim EM, Kim YK, **Arote R**, Jere D, Jeong HJ, Jang MK, Nah JW, Xu CX, Park IK, Cho MH, Cho CS. Galactosylated poly(ethylene glycol)-chitosan-graft-polyethylenimine as a gene carrier for hepatocyte-targeting. *J Control Release*. 2008; 131(2):150-7. [IF: 5.69]

53. Jiang HL, **Arote RB**, Jere D, Kim YK, Cho MH, Cho CS, Degradable polyethylenimines as gene carriers, *Materials Science and Technology*, 2008; 24(9):1118-1126. [IF: 0.89]

54. Jere D, Xu CX, **Arote R**, Yun CH, Cho MH, Cho CS. Poly(beta-amino ester) as a carrier for si/shRNA delivery in lung cancer cells. *Biomaterials*. 2008; 29(16):2535-47.[IF: 6.67]

55. Jere D, Yoo MK, **Arote R**, Kim TH, Cho MH, Nah JW, Choi YJ, Cho CS. Poly (amino ester) composed of poly (ethylene glycol) and aminosilane prepared by combinatorial chemistry as a gene carrier. *Pharm Res*. 2008; 25(4):875-85. [IF: 4.02]

56. Choi MK, **Arote R**, Kim SY, Chung SJ, Shim CK, Cho CS, Kim DD. Transfection of primary human nasal epithelial cells using a biodegradable poly (ester amine) based on polycaprolactone and polyethylenimine as a gene carrier. *J Drug Target*. 2007; 15(10):684-90. [IF: 2.77]

57. Jiang HL, Nagaoka M, Kim YK, **Arote R**, Jere D, Park IY, Akaike T, Cho CS, Gene delivery to stem cells by combination of chitosan-graft-PEI as a gene carrier and E-cadherin-IgG Fc as an extracellular matrix, *Journal of Biomedical Nanotechnol*, 2007; 3: 377-383. [IF: 0.99]

58. Jiang HL, Kwon JT, Kim YK, Kim EM, **Arote R**, Jeong HJ, Nah JW, Choi YJ, Akaike T, Cho MH, Cho CS. Galactosylated chitosan-graft-polyethylenimine as a gene carrier for hepatocyte targeting. *Gene Ther*. 2007; 14(19):1389-98. [IF: 4.49]

59. Kim YK, Choi JY, Yoo MK, Jiang HL, **Arote R**, Je YH, Cho MH, Cho CS. Receptor-mediated gene delivery by folate-PEG-baculovirus in vitro. *J Biotechnol*. 2007; 131(3):353-61. [IF: 2.75]

60. Guo DD, Moon HS, **Arote R**, Seo JH, Quan JS, Choi YJ, Cho CS. Enhanced anticancer effect of conjugated linoleic acid by conjugation with Pluronic F127 on MCF-7 breast cancer cells. *Cancer Lett*. 2007; 254(2):244-54. [IF: 3.50]

61. Kim TH, Cook SE, **Arote RB**, Cho MH, Nah JW, Choi YJ, Cho CS. A degradable hyperbranched poly(ester amine) based on poloxamer diacrylate and polyethylenimine as a gene carrier. *Macromol Biosciences*. 2007; 7(5):611-9. [IF: 3.29]

62. Jiang HL, Kim YK, **Arote R**, Nah JW, Cho MH, Choi YJ, Akaike T, Cho CS. Chitosan-graft-polyethylenimine as a gene carrier. *Journal of Controlled Release*. 2007; 117(2):273-80. [IF: 5.69]

63. **Arote RB**, Kim TH, Kim YK, Jere D, Jiang HL, Park IY, Cho MH, Nah JW, Cho CS, Novel Poly(ester amine) Based on Polycaprolactone and Polyethylenimine as a Gene Carrier: Effect of Hydrophobicity on Transfection Efficiency and Cytotoxicity. *Key Engineering Materials* 2007, 342-343 (Advanced BiomaterialsVII), 453-456. [IF: 0.19]

64. Jere D, Kim TH, **Arote R**, Jiang HL, Cho MH, Nah JW, Cho CS. A poly(-amino ester) of spermine and poly(ethylene glycol) diacrylate as a gene carrier. *Key Engineering Materials* 2007, 342-343(Advanced Biomaterials VII), 425-428. [IF: 0.19]

65. Jiang HL, **Arote R**, Quan JS, Yoo MK, Kim YK, Kim IY, Hong ZS, Lee HG, Jin X, Choi YJ, Cho CS. Alginate-Coated Thiolated Chitosan Microspheres for an Oral Drug Delivery System In Vitro. *Key Engineering Materials* 2007, 342-343 (Advanced BiomaterialsVII), 433-436. [IF: 0.19]

66. Kim YK, Park IK, Jiang HL, **Arote R**, Jeong HJ, Kim EM, Cho MH, Bom HS, Cho CS. Glucosylated Polypropylenimine Dendrimer as a Novel Gene Carrier. *Key Engineering Materials* 2007, 342-343 (Advanced BiomaterialsVII), 457-460. [IF: 0.19]

67. Guo DD, **Arote R**, Jiang HL, Yoo MK, Moon HS, Cho CS. Release of All-Trans Retinoic Acid (RA) from RA-Loaded Poly(ester amine) Based on Polyethylenimine and Polycaprolactone for Intracellular Delivery. *Key Engineering Materials* 2007, 342-343 (Advanced BiomaterialsVII), 429-432. [IF: 0.19]

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Chitosan-Graft-Polyethylenimine for for efficient delivery of AKT1 siRNA to non small cell lung carcinoma cell line, *Advances in Chitin Science* (2007), Vol. X; 417-444. [IF: 4.07]

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Books / Book Chapters

1. Jadhav N, Sangshetti JN, **Arote RB***, Diagnosis in Medical Imaging: Emphasis on Photoacoustic Phenomenon, In: Deep Learning Approaches in Cloud Security, CRC Press (ISBN: 9780367676339), 2022; pp. 19-26.

2. Pathan SK, Mahaparale P, Deshmukh S, Une H, **Arote RB**, Sangshetti JN, Boric Acid: A Versatile Catalyst in Organic Synthesis, In: Applications of Nanotechnology for Green Synthesis, Springer Nature Switzerland A, (ISBN : 978-3-030-44176-0), 2020; pp. 457-483.
3. Hong SJ, Ahn MH, Lee YW, Pal S, Sangshetti JN, **Arote RB***, Biodegradable Polymeric Nanocarrier-based Immunotherapy in Hepatitis Vaccination, In: Advances in Experimental Medicine and Biology Series: Enabling Cutting-Edge Enabling Technologies for Regenerative Medicine, Springer Nature Pub. Co. (ISBN: 978-981-13- 0949-6), Vol :1078, 2018; pp [IF: 1.88] .

4. **Arote RB**, Jere D, Jiang HL, Kim YK, Choi YJ, Cho MH, Cho CS, Injectable polymeric carriers for gene delivery systems. In: Injectable biomaterials: science and applications, Woodhead Publishing, (ISBN: 978-1-84569-588-0), 2011. pp 235-259.

5. Jiang HL, Kim YK, **Arote RB**, Jere D, Choi YJ, Cho MH, Cho CS, Polysaccharide-graft-polyethylenimine as gene carriers, In Polysaccharides: Development, Properties and Applications, Editor: Ashutosh Tiwari, (ISBN 978-1-60876-544-7) NOVA Publishers, Inc., 2010 pp 187-200.

6. Jere D, **Arote R**, Cho MH, Cho CS, Biodegradable poly (β- amino ester) derivatives for gene and siRNA delivery. In: New Gene Therapy and Cancer Research, Editor: Wilma B. Gustafasson, (ISBN: 978-1-60021-969-6) Nova Science Publishers Inc. 2009; pp. 249- 278.

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VI. PATENTS

1. Choi Boomin, Lee Sung Joong, Arote Rohidas B, Development of microglia-specific drug delivery system nanomolecules based on triethylene glycol dimethacrylate-polyethylenimine (TG-PEI). Korean Patent (KR202000034017A).

2. Sangshetti JN, Kalam Khan FA, Shinde DB, Zaheer Z, Gonjari I, Arote R, Patil RH. Synthesis of novel 3-)2-chloroquinolin-3yl)-N-cyclohexyl quinolin-2-amines and antibacterial activity thereof. Indian Patent (No: 91/MUM/2015A).

3. Cho, Chong Su, Cho, Myung Haing, Choi, Yun Jaie, Rohidas Arote, Kim, You Kyoung . A novel biodegradable polyesteramine based onpolycaprolactone diacrylate and polyethylenimine as a gene carrier. Korean Patent (No; KR20080024016A) [Application Granted : 2008-09- 26].

4. Cho, Chong Su, Cho, Myung Haing, Choi, Yun Jaie, Rohidas Arote, Kim, You Kyoung, Polymer/DNA complex for non-viral DNA carrier. Korean Patent (No; KR20100001563A)[Application Granted: 2010.09.07].