Resume/ POOJA DUA CHAUDHARI

CURRENT POSITION

Assistant Professor-UGC
Department of Microbiology
Goa University
Taleigao plateau, Goa 403206, India
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PROFESSIONAL EXPERIENCE (in reverse chronological order)

Research Scientist *(July 2017-October 2017)*
OliX Pharmaceuticals. Suwon, South Korea. http://www.olixpharma.com

NRF Research Professor *(May 2012- June 2017)*
Biomolecular Therapeutics Laboratory, Chemistry Department Sungkyunkwan University, Suwon, South Korea www.skku-bmtl.com

Research Consultant *(Feb 2013-April 2015)*
AptaSSD Co Ltd
Head office: F13, (Endeavor Tower) 45, seocho-daero 74-gil, Seocho-gu, Seoul, Korea / Laboratory : #601, 2, Toegye-ro 36-gil, Jung-gu, Seoul, Korea. www.aptassd.com

Research Professor *(March 2011- April 2012)*
Research Institute of Biotechnology, Dongguk University, Seoul, South Korea

Assistant Professor *(April 2009 –February 2011)*
Research Institute of Biotechnology, Dongguk University, Seoul, South Korea

Postdoctoral Researcher *(March 2008 –April 2009)*
Biomolecular Therapeutics Laboratory, Chemistry Department Sungkyunkwan University, Suwon, South Korea

EDUCATION

Ph.D. Biochemistry (Feb 2008)
Title: "Studies on the Action of Pentoxifylline on B16F10 Melanoma Metastasis." Advance Centre for Treatment, Research & Education in Cancer, Tata Memorial Hospital Navi Mumbai, India. University of Mumbai. India. *Principle Investigator: Dr. Rajiv.P. Gude*

Masters in Microbiology, Devi Ahilya University, Indore, India. (May 2001)

Bachelors in Biotechnology, MDS University Ajmer, India. (June 1999)

RESEARCH EXPERIENCE AND SKILLS

Cancer research, small RNA based therapeutics and diagnostics, drug development

Core Research Area

- Aptamer mediated cancer biomarker identification and clinical translation
- Development of RNA/DNA aptamers for theronostic uses..
- siRNA structural modifications and developing RNAi for therapeutics.

Technical skills

1. Specialized techniques related to aptamer development and biomarker identification:

i. SELEX, Cell-SELEX with mammalian and bacterial systems using RNA, modified RNA and DNA libraries.
ii. Aptamer size minimization, characterization and structure predictions
iii. Aptamer mediated cancer biomarker Identification and further validation.
iv. Developmet of Aptamer based ELISA platforms.
v. siRNA design, siRNA structural modifications to reduce non-specific effects, siRNA drug development. Aptamer mediated targeted RNAi.

2. Tissue culture techniques:

i. Culture and Maintain Cell lines: Established cancerous/non-cancerous cell lines, Primary cells, generation of stable cell lines. *In vitro* blood brain barrier models
ii. Cell based functional assays to study cancer stem cells, angiogenesis and metastasis: Cell-cell, cell-matrix adhesion assays, wound healing assay, invasion assay, tube formation assay, sphere formation assay.

3. Cellular and molecular biology techniques:

i Protein, RNA and DNA isolation.
ii Western blotting, Zymography, Agarose/PAGE gel electrophoresis.
iii Immunoflourescence techniques, Fluorescent, confocal microscopy, live cell imaging.
iv Non-radioactive kinase assays, FACS, Luciferase assays, ELISA, ALISA, qPCR, RT-PCR, Microarray.

4. Animal Experimentation

i. worked with SCID/nude mice and C57BL6 mice
ii.Xenograft establishment. Subcutaneous, intravenous and intraperitonial injection of drug.
Iii Blood sampling form heart. Organ collection.
iii Planning and execution of animal experimentation including sample processing for RNA and protein studies.

RESEARCH ACCOMPLISHMENT (as of June 2018)

- Total no. of peer reviewed publications- 18
- Total citations- 602
- H-index- 13 (web of Science)

https://scholar.google.com/citations?user=eiYiIfMAAAAJ&hl=en
https://www.researchgate.net/profile/Pooja_Dua2

List of research publications (in reverse chronological order)

1. **Dua P**, Kang Sinae, Shin Hye Soo, Kim Soyoun, Lee Dk. Cell-SELEX-Based Identification of a Human and Mouse Cross-Reactive Endothelial Cell-Internalizing Aptamer**. Nucleic Acid Therapeutics** 2018.

2. **Dua P**, Shuo Ren, Sang Wook Lee, Joon-Ki Kim, Hye-su Shin OK-Chan Jeong, Soyoun Kim, Dong-Ki Lee. Cell-SELEX based identification of an RNA aptamer for Escherichia coli and its use in various detection formats. **Mol. Cells** 2016; 39(11): 807-813

3. **Dua P**, S Sajeesh, Kim S, Lee DK. ALPPL2 Aptamer-Mediated targeted Delivery of 5-Fluoro2'-deoxyuridine to Pancreatic Cancer. **Nucleic Acid Therapeutics** 2015 25(4) 180-7.

4. S Sajeesh Tae Yeon Lee, Sun Woo Hong, **Dua P,** Jeong Yong Choe et al. *Long dsRNA-mediated RNA interference and immunostimulation: a targeted delivery approach using polyethyleneimine based nano- carriers.* **Mol Pharm** 2014 Mar 20; 11(3):872-84.

5. **Dua P**, Kang HS, Hong SM, Tsao MS, Kim S, Lee DK. *Alkaline Phosphatase ALPPL-2 Is a Novel Pancreatic Carcinoma-Associated Protein.* **Cancer Research,** 2013, 73 (6), 1934-1945.

6. Some , Ho SM, **Dua P**, Hwang E, Shin YH, Yoo HJ, Kang JS, Lee DK, Lee H. *Dual Functions of Highly Potent Graphene Derivative–Poly-l-Lysine Composites To Inhibit Bacteria and Support Human Cells.* **ACS Nano**, 2012, 6 (8), 7151-7161.

7. **Dua P**, Kim, S, LeeDK. *Modified siRNA structure with a Single Nucleotide Bulge Overcomes Conventional siRNA mediated off-target Silencing.* **Molecular Therapy** 2011 Sep;19(9):1676-87.

8. **Dua P**, Lee CH, Chaudhari K, Chaudhari NK, Hong SW, Yu JS, Lee Dk. *Evaluation of Toxicity and Gene Expression Changes Triggered by Oxide Nanoparticles.* **Bulletin of Korean Chemical Society.** 2011; 32(6) 2051-2057.

9. Chang CI, Lee TY, **Dua P**, Kim S, Li CJ, and Lee DK. *Long dsRNA-mediated RNA interference and immunostimulation: long interfering dsRNA (liRNA) as a potent anticancer therapeutics*. **Nucleic Acid Therapeutics,** 2011;21(3)149-155.

10. Chang CI, Kim HA, Chiang J. Li, **Dua P**, Kim S, Li CJ, and Lee DK˙ *Structural Diversity Repertoire of Gene Silencing siRNA*. **Nucleic Acid Therapeutics**. 2011 May 12.

11. **Dua P**, Kim,S, Lee DK. *Nucleic acid Aptamers targeting Cell-surface proteins.* (2010). **Methods.** 2011 Feb 12.

12. Jo M, Ahn JY, Lee J, Lee S, Hong SW, Yoo JW, Kang J, **Dua P,** Lee DK, Hong S, Kim S. *Development of Single-Stranded DNA Aptamers for Specific Bisphenol A Detection.* **Nucleic Acid Therapeutics.** 2011 Apr;21(2):85-91.

13. Ahn JY, Jo M, **Dua P,** Lee DK, Kim SA. *Sol-gel-based microfluidics system enhances the efficiency of RNA aptamer selection*. **Nucleic Acid Therapeutics.** 2011 Apr;21(2):93-100.

14. **Dua P**, Jeong S, Lee SE, Hong SW, Kim S, Lee DK. *Evaluation of Toxicity and Gene Expression Changes Triggered by Quantum Dots.* (2010). **Bulletin of Korean Chemical Society** 31(6): 1555-1560.

15. **Dua P**, Kim S, Lee DK. *Patent on SELEX and Therapeutic Aptamers.* (2008). **Recent Pat DNA Gene Seq**. 2(3):172-86.

16. **Dua P**, Gude RP. *Pentoxifylline impedes migration in B16F10 melanoma by modulating Rho GTPase activity*

and actin organization. (2008). **Eur J Cancer** 44(11):1587-95.

17. **Dua P**, Ingle A, Gude RP. *Suramin Augments the Anti-tumor and Anti-metastatic activity of Pentoxifylline in B16 F10 Melanoma.* (2007). **International journal of Cancer** 1;121(7):1600-8.

18. **Dua P**, Gude RP. *Anti proliferative and anti-proteolytic activity of Pentoxifylline, in cultures of B16F10 Melanoma Cells.* (2006). **Cancer Chemotherapy and Pharmacology** 58(2): 195-202.

INTERNATIONAL PATENTS

1. Nucleic Acid Aptamer Specifically Binding to Pancreatic Cancer Cells or Tissues and Use Thereof. WO/2010/140834, US 8563711B2
   DK Lee, **Pooja D**

2. Novel siRNA structure for Minimizing Off -Target Effects Caused by Antisense Strands and Use Thereof. WO/2011/056005, US 2013/0130377 A1
   DKLee, **Pooja D**

RESEARCH GRANT

Rs. 10 lakh, start-up research grant from UGC, for UGC-FRP position **(ongoing)**

150,000 USD Grant from National Research Foundation of Korea. (Nov 2013- Nov 2016).
Project Name: "Blood Brain Barrier permeable aptamer for Drug Delivery to Brain."
Project No: 2013R1A1A2062908

AWARDS/ FELLOWSHIPS

1. UGC-Faculty Recharge Programme selected faculty- cycle IV
2. National Research Fellow award from National research Foundation of Korea.
3. Late Dr. Tae-Gwan Park Memorial Young Scientist Award, 2011.
4. Best Poster Presentation KOTS-2 international Symposium 2010
5. Senior Research Fellowship from Lady Tata Memorial Trust, Mumbai, India (Sep 2006)
6. Senior Research Fellowship Indian Council for Medical Research, India (June 2006).
7. Junior Research Fellowship from Department of atomic energy (DAE), Govt. of India.

SELECTED CONFERENCE PRESENTATIONS

1. Invited Talk: The 14th international conference of international drug discovery Science and technology, 2016. *An RNA Aptamer Targeting Pancreatic Cancer: from AptaBID to Theronostics. Gyeonggi, South Korea*.

2. Poster Presentation: 11th Annual Meeting of the Oligonucleotide Therapeutic Society 2015.

Theronostic Uses of SQ2: an update on the post SELEX applications of the aptamer for pancreatic cancer. Leiden, Netherlands

3. Platform talk: International Forum on Functional Materials 2015. Cell-SELEX based development of aptamers for detection of E.coli.

4. Invited talk: 2nd GRL international Symposium 2014. Cell SELEX based aptamer selection identifies novel membrane biomarkers. South Korea

5. Invited talk: Korean Nucleic acid Society, 2012 Cell-SELEX based generation of Aptamers for Pancreatic Cancer Diagnosis. South Korea

6. Invited talk: 2nd Korean Oligonecleotide international Symposium 2010. "Modified siRNA structure with a single Nucleotide Bulge Overcomes Conventional siRNA mediated Off-target silencing", South Korea.

7. Poster presentation: 2nd KOTS international Symposium 2010, "Development of Pancreatic cancer aptamers using Cell –Selex". South Korea

8. Poster presentation: 5th annual meeting of Oligonucleotide Therapeutics Society 2009, "Bulge asymmetric siRNA structure overcomes the conventional siRNA mediated off-target effects", Fukuoka, Japan.

9. Poster presentation: the First Pacific Symposium on Angiogenesis and Lymphangiogenesis, "Suramin augments the antimetastatic and antiangiogenic effects of Pentoxifylline in B16F10 melanoma", Jeju Island, Korea, 2007.

10. Platform presentation: International Symposium on Transitional Research in cancer: Bench to bedside, "*Antimetastatic effects of Pentoxifylline in B16F10 Melanoma",* ACTREC, TMC. Mumbai, India, 2005.