

# Ashvani K. Singh, Ph.D.

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## CAREER HIGHLIGHTS

A highly motivated leader of a cross-functional, multidisciplinary team, focusing on the development of primary and secondary biological and translational assays to identify novel small molecule chemical space for several drug discovery programs, with the goal of rapid advancement of these novel medicinal chemistry hits of projects leading to IND status candidates for clinical trials, having specific interest towards clinical translation of these products. Performed pivotal work leading to the development of the three FDA approved drugs, Kalydeco™, ORKAMBI™ and SYMDEKO™ that treat the underlying genetic defect that causes Cystic Fibrosis and continued those interests at Abbvie, for developing triple combination modulators for this disease. Led the group that has delivered the first and next-gen triple combination CFTR modulators that underwent different phases of clinical trials at Abbvie. Core strengths include:

- Expertise in compiling R&D and IND reports for several pre-clinical and clinical candidates
- Development and implementation of primary and secondary biological and translational assays for the Cystic Fibrosis program at two different pharmaceutical organizations
- Development and implementation of primary and secondary biological assays of different drug target programs focused upon human aging
- Documented expertise as a liaison between Commercial, Clinical Development, Pre-clinical, Biology, Medicinal Chemistry, and High Throughput Screening groups

## PROFESSIONAL EXPERIENCE

### **Abbvie Inc., Lake County, North Chicago, IL**

Senior Principal Scientist

**Aug 2020 - present**

Principal Scientist II and Cystic Fibrosis Biology Group Leader, iSAT

**Nov 2019 – Aug 2023**

Principal Scientist, Cystic Fibrosis Biology Group, iSAT

**Nov 2013 – Nov 2019**

- Led assay development, cell production, high throughput screening teams for the CF program at Abbvie – it also included collaboration with external collaborator, Galapagos
  - Led matrix teams that included compound management, data generation, data analysis and data visualization needs
  - Led a smooth transition of HTS campaigns for selection of novel starting points for the CF project that were confirmed in secondary assays using primary human bronchial epithelial cells at Rosalind Franklin University Medical School
- Delivered R&D and IND reports with data package from functional characterization of clinical potentiator candidates, ABBV974 (GLPG1837), ABBV-2196, ABBV2451, ABBV3067 and ABBV-191; clinical C1 corrector candidates, ABBV2222 and ABBV2851; and clinical C2 corrector candidates ABBV2737, ABBV3221, ABBV3748, ABBV-2665, ABBV-111, ABBV-119, ABBV-602 and ABBV-576
- Developed, validated, and implemented in-house capabilities for culturing primary HBE that was instrumental in providing a sustained TECC functional assay support with the help of Abbvie's Engineering group that included the development of automated 96-well TECC and semi-automated 24-well systems for the CF Medicinal Chemistry program
- Led evaluations of several external CFTR modulators, which led to the successful in-licensing to develop a CFTR potentiator compound from the Cystic Fibrosis Foundation
- Led the CF Biology group to understand the MoA and causal relationship with the three classes of CFTR modulators that were under clinical development at Abbvie
- Successfully mentored senior scientists, postdoc and interns as part of Abbvie's summer internship program, and the prestigious scientific mobility summer internship program that was specifically designed by Abbvie in close association with the Brazilian government
- Led several effective collaborations between Abbvie and external CF experts during the AbbVie CF program

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- Leading a group that is focused upon exploratory targets related to understanding human aging as part of the Calico-AbbVie collaboration

## **Vertex Pharmaceuticals Incorporated, San Diego, CA**

**Jan 2001-Nov 2013**

Senior Research Scientist, Core Department

Principal Scientist, Medicinal Chemistry Department

- Contributions include development of Vertex triple combination F508del CFTR Modulators
- Significant contribution as a key team member that led to the development of Tezacaftor (VX-661), that in combination with Ivacaftor (VX-770) is marketed as SYMDEKO™ and Lumacaftor (VX-809), that in combination with Ivacaftor (VX-770) is marketed as ORKAMBI™ for the treatment of cystic fibrosis (CF) in patients who have two copies of the F508del mutation (F508del/F508del) in their CFTR gene
- Significant contribution as a key team member that led to the development of Ivacaftor (VX-770), also known as Kalydeco™, currently on the market for the treatment of a subset of Cystic Fibrosis patients with the F508del/G551D and other heterozygous gating mutations
- Led assay development, cell production and HT screening teams of several primary screens for the CF modulator programs, voltage-gated sodium ion channels for the neuropathic pain program, and microglial modulators for a neurodegenerative disease program
- Actively participated as a key member that led to the development of high-throughput Ussing chamber assays utilizing primary human bronchial epithelial cells that were instrumental as secondary assays supporting the Cystic Fibrosis potentiator and corrector programs

## **School of Medicine, University of Pittsburgh, PA**

**Sept 1995- Jan 2001**

Research Assistant Professor in the laboratory of Prof. Robert Bridges

- Identification and SAR optimization of new “drug lead molecules” as novel modulators of apical membrane chloride channels and basolateral membrane potassium channels.
- Primary biological screening of ion channel modulators utilizing various cellular bioassays.

## **EDUCATION & TRAINING**

**B.Sc. and M.Sc.:** Department of Chemistry, Lucknow University (1981 - 1984)

**Ph.D.:** Dr. S Ray; Med Chem Dept, Central Drug Research Institute, Lucknow, India (1984 - 1989)

**Post-Doc and CFF Res Fellow:** Prof. R.J. Bridges; Univ. of Alabama at Birmingham, AL (1989- 95)

## **PROFESSIONAL HONORS AND AWARDS**

- 2024 International advisory board member of the Gravitation (Zwaartekracht) program funded by The Netherlands government to study gain or loss of function protein folding aspects for their role in human diseases
- 2023 CFF award for Scientific achievements and contributions to the CF field
- 2023 Jack Riordan & Paul Quinton CF Science award for Scientific achievements
- 2023 Distinguished Alumni award by my Alma Matter, Lucknow University
- 2020 Abbvie President R&D award for the discovery of C2 CFTR Correctors
- 2018 Abbvie Discovery Vice-President R&D award for the BreatheZ project
- 2016 Abbvie President R&D award for the discovery of C1 CFTR Correctors
- 2015 Co-recipient of the 1<sup>st</sup> annual Robert J. Beall Therapeutics Development Award by CFF recognizing as being of seminal importance to the field of Cystic Fibrosis research
- Special recognition from Dr. Robert Beall, CEO, Cystic Fibrosis Foundation of America for successful development of drugs to treat Cystic Fibrosis, 2010
- Served as Director of Drug Chemistry core of the Pittsburgh CF Research Center, 1997

## **INVITED SEMINARS, PATENTS AND PUBLICATIONS**

- Over 40 invited seminars at national and international conferences and Universities
- Over 25 peer reviewed publications and 70 abstracts presented at conferences
- More than 15 patents issued or filed