

JOSEPH P. SMITH, Ph.D. | TWO PAGE CURRICULUM VITAE

joseph.smith@merck.com • 770 Sumneytown Pike West Point, PA 19486 • (610) 322-0652

EDUCATION:

Ph.D. in Analytical Chemistry

Department of Chemistry & Biochemistry
The University of Delaware, Newark, DE 19711
August 2012 – May 2017

B.S. in Chemistry

Department of Chemistry & Biochemistry
The Pennsylvania State University, University Park, PA 16802
August 2008 – May 2012

SELECTED RESEARCH & PHARMACEUTICAL EXPERIENCE:

Director, Data Rich Experimentation

Process Research & Development Enabling Technologies Department; Merck
July 2023 – Current

- Established & led a new group (>20 colleagues) for data rich experimentation in process R&D
- Invented, developed, & applied new technologies to improve process understanding across modalities (small molecule, biologics, & vaccines), delivering key pipeline & scientific impacts
- Led diverse, multidisciplinary team to embed data-intense tools into the fabric of process research with a focus on machine learning, data science, high-throughput experimentation, automation, process modeling, simulation, kinetics, mechanism elucidation, & PAT
- Employee-focused leader that prioritizes the people, fostering career development of the team

Principal Scientist, Analytical Enabling Capabilities

Analytical Research & Development Department; Merck
May 2023 – July 2023

- Scientific supervisor & group leader (>7 colleagues) of integrated analytics for vaccine R&D
- Delivered PAT solutions for major impacts on a vast project portfolio with limited resources
- Drove strategic vision of group, securing >3.7 mil. USD for future-looking technology
- Actively drove talent development of team, fostering personal and scientific growth

Associate Principal Scientist, Analytical Enabling Technologies

Analytical Research & Development Department; Merck
June 2020 – May 2023

- Established, led, and scientifically supervised a new team (>5 colleagues) within vaccines
- Leveraged small molecule & PAT expertise to expand knowledge & pioneer team in new space
- Developed innovative analytical technologies and PAT across vaccine pillars (recombinant, live virus, mRNA) for development through commercialization

Senior Scientist, Analytical Enabling Technologies

Analytical Research & Development Department; Merck
April 2019 – June 2020

- Led PAT efforts for key small molecule programs across Merck's pipeline
- Novel analytical technology development for small molecule process research & development
- Department lead for enzyme immobilization technology and machine learning initiatives

Senior Scientist, Small Molecule Analytical Research & Development

Analytical Research & Development Department; Merck
July 2017 – April 2019

- Analytical project lead of small molecule and peptide-based pipeline programs
- Invented new tool for residual protein analysis; led LC method development across programs

SELECTED LEADERSHIP EXPERIENCE:

Lead of Development and Commercialization Team for Novel Vaccine Program

Process Research & Development Enabling Technologies Department; Merck

- Managed cross-functional Merck-wide team (>117 colleagues) for highest priority vaccine

- Developed program CMC development strategy under aggressive timelines, representing the entirety of the Development Sciences and Clinical Supply (DSCS) organization
- Achieved major program acceleration, including first in human (10 month PCC to IND submission for multiple antigens) & product launch (>3 year acceleration of BLA submission)

Mentor, Principal Investigator, and Advisor to MRL Postdoctoral Research Fellows at Merck
Analytical Research & Development Department; Merck

- Mentored, advised, and guided novel research of two postdoctoral research fellows at Merck

Principal Investigator of Merck-U. of Delaware, -Purdue U., and -Indiana U. Collaborations
Analytical Research & Development Department; Merck

- Established and led external academic collaborations with leaders in the scientific community

Lead Merck Representative of NIIMBL Vaccine Working Group & NIIMBL Vaccine Analytics
Analytical Research & Development Department; Merck

- Merck representative on interdisciplinary team of leaders for vaccine research & production

Lead Ambassador at Merck for the University of Delaware & AR&D Recruiting Team Member
Analytical Research & Development Department; Merck

- Chief ambassador and recruiter for Merck at the University of Delaware

Research Assistant for SELI-REU (Science & Engineering Leadership Experience) Program
NSF-Funded Program; University of Delaware

- Helped in the advancement of students with disabilities interested in careers in science

SELECTED HONORS AND AWARDS:

- Emerging Leader in Molecular Spectroscopy Award for achievements of spectroscopists
- Bruce R. Kowalski Award for outstanding young researcher in the field of chemometrics
- Glenn S. Skinner Memorial Prize for outstanding scholarship, research, and teaching
- Silver Symposium Award for excellence in research and communicating science
- Elizabeth Dyer Award for Teaching; University of Delaware Excellence in Teaching Award

SELECTED PUBLICATIONS: (*Google Scholar Profile* [Link](#))

Total of **55 publications** (49 in print, 6 submitted) — over 1525 citations (*h*-index of 18; *i*-10 index of 28)

- *Molecular Pharmaceutics* (2024) (**Front Cover**) *corresponding author
- *ACS Central Science** (2023) (**Front Cover**) *corresponding author
- *Nature* (2022) ; *Analyst* (2022) *corresponding author (**Front Cover**)
- *Analytical Chemistry* (2021) *corr. author ; *OPRD* (2021) *corr. author (**Front Cover**)

SELECTED PRESENTATIONS:

Total of **61 presentations** at national and international conferences (31 invited, 7 awards)

- Smith, J.P. SciX. **Plenary Seminar and Chair of Award Session for Emerging Leader in Molecular Spectroscopy Award**, sponsored by Spectroscopy Magazine.
- Smith, J.P. ACS. **Invited Seminar & Session Chair for ACS Anal. Chem.**
- Smith, J.P. Pittcon. **Invited Seminar**; Smith, J.P. SciX **Invited Seminar**
- Smith, J.P. SciX. **Bruce Kowalski Award Recipient**; Smith, J.P. EAS **Award Recipient**

COLLABORATIONS:

- Actively collaborating with >30 colleagues across disciplines at >13 institutions worldwide
- Driving research on machine learning, data & predictive sciences, spectroscopy, imaging, PAT

SELECTED HIGHLIGHTS IN PRESS:

- [Merck Joseph Smith Growing Leader](#); [Merck Postdoctoral Research Mentor - Joseph Smith](#)
- [SAS Feature of Joseph Smith](#); [Merck-University of Delaware Collaboration](#)
- [EAS Graduate Student Award](#); [Joseph Smith Recognized for Outstanding Work](#)
- [U. of Delaware Excellence in Teaching Award](#); [Chemical & Engineering News](#)