Peter Yao

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About Me

Versatile, data-driven scientist, interested in modelling of manufacturing processes, visualization and analysis, and applying data science in the chemical and biopharmaceutical industries.

Work Experience

Lonza AG **Basel, Switzerland**
Lead Scientist, Drug Product Services *Nov 2020 – Present*
Pharmaceutical development studies for liquid and lyophilized biologic drug products. Laboratory-scale modelling of fill/finish processes.

- Established laboratory study workflow for ambient light photostability evaluations.
- Supported risk assessments for Biologics License Applications (BLA) by Cause and Effect Matrix and Failure Mode and Effects Analysis (FMEA).
- Collaborated with multiple teams to support implementation of early phase programs in clinical supply manufacturing.

Janssen Pharmaceuticals **Schaffhausen, Switzerland**
Senior Associate Scientist, Large Molecule DP Development *Jan 2018 – Oct 2020*
Aseptic fill/finish processes for new drug product introductions and technical transfers at Schaffhausen facility.

- Led development laboratory efforts to identify solutions to technical problems in manufacture of a commercial product and create estimated 1M CHF/year in savings when implemented.
- Implemented laboratory study workflow to evaluate filtration performance and ensure smooth operation of the critical unit operation in aseptic manufacturing.
- Collaborated with multifunctional team to identify and implement new process analytical technologies to verify process models and gain new insights during manufacturing.

Janssen Pharmaceuticals **Schaffhausen, Switzerland**
Senior Associate Scientist, Small Molecule API Development *Nov 2015 – Dec 2017*
Support for late-stage chemical development of small molecule APIs and intermediates. Crystallization process development and process analytical technologies.

- Responsible for development, evaluation of polymorph control, and definition of proven acceptable ranges of key crystallization step in synthetic route for a commercial product.
- Led the study of an enantiomeric resolution by crystallization to establish fundamental system properties and identify key crystal forms.

Bristol-Myers Squibb **New Brunswick (NJ), USA**
Research Scientist, Chemical Development *Jan 2008 – Aug 2013*
Support for early-stage chemical development of small molecule APIs and intermediates. Synthetic route evaluation. Enabling syntheses to deliver clinical material.

- Responsible for development of a process to deliver API for a commercial product with highly specific powder properties suitable for roller compaction and acted as liaison between laboratory development team and pilot plant operations team.
- Worked with a rapidly organised team to deliver clinical material of a highly potent intermediate for an antibody drug conjugate under aggressive timelines.
- Collaborated on diverse multi-functional teams to achieve multiple end-to-end objectives across a variety of projects for six development programs.

Education

University of Illinois at Urbana-Champaign **Illinois, USA**
MS Chemistry *2007*
Main-group asymmetric catalysis
Advisor: Prof. Scott E. Denmark

Case Western Reserve University **Ohio, USA**
BS Chemical Engineering, BS Polymer Science and Engineering *2004*
Advisor: Prof. Christoph Weder

Qualifications

process modelling, process scale-up, statistical analysis, process analytical technologies (PAT), aseptic fill/finish, data visualization, chemical process optimization, R, python

Languages

English : Native - French : B2 - German : B1

Publications

1. Kokil, A., Yao, P., & Weder, C. (2005). Organometallic Networks Based on 2,2′-Bipyridine-Containing Poly(*p*-phenylene ethynylene)s. *Macromolecules*, *38*(9), 3800–3807.
2. Denmark, S. E., Eklov, B. M., Yao, P. J., & Eastgate, M. D. (2009). On the Mechanism of Lewis Base Catalyzed Aldol Addition Reactions: Kinetic and Spectroscopic Investigations Using Rapid-Injection NMR. *Journal of the American Chemical Society*, *131*(33), 11770–11787.