

TIMOTHY (TIM) RUCKH, PH.D

SUMMARY

Proven biotechnology innovator who has been solving research problems for over a decade. Over five years of developing products aimed at specific problems in both academic and startup research settings.

EDUCATION

Ph.D.	Biomedical Engineering, <i>Colorado State University</i> , Fort Collins, CO	2010
M.S.	Mechanical Engineering, <i>Colorado State University</i> , Fort Collins, CO	2008
B.S.	Mechanical Engineering, <i>University of Minnesota</i> , Minneapolis, MN	2005

EXPERIENCE

- Verily Life Sciences, S. San Francisco, CA** (Google Life Sciences), Sr. Scientist 2014 – Pres
- Developed the case for an automated nanoparticle production platform including >\$1.5MM in capital equipment
 - Validated nanoparticle formulation robot operation, now capable of making 1000's of formulations per week
 - Implemented robotic automation for nanoparticle characterization with a four-party collaboration
 - Reduced operator time 30-fold in an automated nanoparticle characterization technique
 - Cultivated a KOL relationship and burgeoning alliance that spanned multiple teams within Verily
 - Interviewed over 150 candidates for science and engineering positions
 - Patented new technologies - 4 submitted to USPTO and WPO, 1 issued
 - Clarified features for a disease management platform with technical market analysis
- Nanoferix, Nashville, TN**, Co-founder & Director of Drug Delivery 2012 – 2014
- Evaluated potential nanomedicine licensing opportunities and made go/no-go recommendations
 - Presented polymer nanotechnology platform during \$1.4MM seed round
 - Led intellectual property generation for new patents and continuations on 4 key filings
 - Co-planned and oversaw technology development with academic partners and CROs
- Northeastern University, Boston, MA**, Postdoctoral Research Associate 2011 – 2014
- Collaborated with an industry partner to bring new chromophore series to market
 - Created ultra-small and photo-stable nanosensors to image sodium or potassium fluxes in neurons
 - Performed and analyzed simultaneous electrophysiology and high-speed microscopy experiments
 - Characterized 3-component FRET interactions and analytical responses for quantum dot nanosensor
 - Awarded \$160k NIH F32 Fellowship and Burroughs-Wellcome International Travel Grant
- Massachusetts General Hospital, Boston, MA**, Postdoctoral Research Fellow 2010 – 2011
- Delivered MR and fluorescent gene transcript probes to live animal CNS using surgical techniques
 - Evaluated uptake profiles of MR-visible nanoparticle probes in live animals
- Colorado State University, Fort Collins, CO**, PhD Candidate 2008 – 2010
- Identified and incorporated novel osteogenic design factors for polymer nanofiber scaffolds
 - Produce hierarchical architectural organization in electrospun nanofiber scaffolds
 - Designed, proposed, and analyzed *in vitro* and *in vivo* experimentation for tissue regeneration
 - Profiled antibiotic release and bactericidal efficacy of encapsulated antibiotic in nanofiber scaffolds
- Colorado State University, Fort Collins, CO**, MS Candidate 2005 – 2007

- Developed finite element (FE) model of ovine tibia by from Computed Tomography (CT) images
- Constructed a high-resolution, fully 3-D digital human knee model from both CT and MR data
- Incorporated linear and non-linear mechanical models of biological materials into FE analysis

SKILLS AND QUALIFICATIONS

Nanoparticle and formulation sciences

- Nanoprecipitation, emulsion-evaporation, electrospray, and ultra-sonication
- Field flow fractionation, multi-angle and quasi-elastic light scattering, refractometry
- Nanoparticle tracking analysis
- UV-vis and fluorescence spectroscopy
- Automated liquid handling with aqueous and organic solvents
- Thermogravimetric analysis and digital scanning calorimetry
- Scanning electron microscopy and energy dispersive x-ray spectroscopy
- Drug release and solubilization
- Design of experiments and data analysis

Cellular and biological analysis:

- Primary cell harvest from tissues and mammalian cell culture
- Patch clamp electrophysiology
- Quantitative light microscopy and image analysis
- PCR/qPCR and ancillary preparations

Strategy and management:

- Technical market analysis in life sciences for research and clinical segments
- CRO management for technical development
- Academic-industry collaboration management

PUBLICATIONS, PRESENTATIONS, AND PATENTS

- 12 peer-reviewed manuscripts, 13 conference abstracts, 3 patents issued
- A complete list is available upon request

CONTINUING PROFESSIONAL DEVELOPMENT

Cold Spring Harbor Labs: Quantitative Light Microscopy (2014); Ion Channel Physiology and Synaptic Transmission (2013)

Wyatt Technologies: Light Scattering and Field Flow Fractionation (2015)

Society for Laboratory Automation and Biological Screening: Design of Experiments (2009), Technical project management (2012) Excel and VBA for Automated Data Visualization and Analysis (2014), Maintenance and derivation of induced pluripotent stem cells (2015)

PROFESSIONAL SERVICE AND AWARDS

Society for Laboratory Automation and Screening – Innovation Award Judge (2012 – 18), Academic Travel Award (2009 – 2011, 2013, 2014), Poster Competition Winner (2014), Chair of Young Professionals Committee (2014)

Fierce Life Sciences – Innovation Award Judge (2016, 2017)

Biomedical Engineering Society – CSU chapter president (2008 – 2009)