

Ryan M. Clauson, Ph.D.

Education:

Ph.D. and M.S. Pharmaceutical Sciences (2013-2019)

University of Michigan - Ann Arbor, MI

Principal Investigators: Professor Duxin Sun and Assistant Professor Beata Chertok

Gordon and Pamela Amidon Fellowship in Pharmaceutics

Thesis: *Viral mimicking iron-oxide nanoplatfoms for highly efficient lymph node delivery and lymphocyte activation*

B.S. Biochemistry, Molecular and Cellular Biology (2009-2013)

University of New Hampshire – Durham, NH

Principal Investigators: Emeritus Professor Donald Sundberg and Assistant Professor John Tsavalas

Magna Cum Laude

Phi Beta Kappa Honor Society

Work Experience:

VP of R&D and Operations – Torigen Pharmaceuticals – Farmington CT

- Experience: February 2020 – Present
 - Immuno-oncology research and cancer vaccine development in companion animals
 - Developed and submitted provisional patents for novel adjuvant strategy for autologous immunotherapy
 - Established potency assay for serial batch release of vaccine products to meet USDA regulations
 - Published preliminary efficacy analysis of immunotherapy in canine hemangiosarcoma patients
 - Implemented strategies to improve efficiency in vaccine manufacturing
 - Managed team of two full-time Associate Scientists, two full-time vaccine manufacturing technicians
 - Maintain R&D program budget

Research Scientist – Torigen Pharmaceuticals – Farmington CT

- Experience: January 2019 – February 2020
 - Immuno-oncology research and vaccine development in companion animals
 - Developed and validated cross-species antibody panels for primary canine immune cell analysis
 - Established protocols for canine blood sample processing
 - Initiated canine tumor bio-banking procedures
 - Gained approval for animal protocols via UConn Health IACUC committee as PI
 - Started animal work toward the development of a novel adjuvant strategy for autologous immunotherapy

University of Michigan, College of Pharmacy – Dr. Duxin Sun Laboratory – Nanotechnology Group

- Experience: July 2017 - January 2019
- Research Areas:
 - Nanoparticle formulations and drug delivery
 - Vaccine development and cancer immunotherapy
 - Polyclonal antibody production
- Accomplishments:
 - Developed virus-like inorganic nanoparticle technology as a prophylactic HER2+ breast cancer vaccine and platform for antigen-specific polyclonal antibody production in-vivo.

University of Michigan, College of Pharmacy – Dr. Beata Chertok Laboratory

- Experience: March 2014 - July 2017
- Research Areas:
 - Nanoparticle formulations and drug delivery – inorganic, polymer and lipid nanoparticles
 - Vaccine development and cancer immunotherapy
 - MRI and ultrasound imaging
- Accomplishments:
 - Developed antigen-adjuvant covalent conjugate vaccine as model cancer immunotherapeutic
 - Developed novel lipid-coated iron-oxide nanoparticles for MRI-visible lymph node delivery
 - Developed spatial-temporal hybrid nanoparticle system based on controlled release polymers conjugates to microbubbles for treatment of glioblastoma

University of New Hampshire - Nanostructured Polymers Research Center

- Experience: May 2011 - August 2013
- Mentors: Dr. Donald Sundberg and Dr. John Tsavalas
- Research Areas:
 - Polymer chemistry, emulsion polymerization
 - Latex-based core-shell nanoparticle formulations
- Accomplishments:
 - Development of nanoparticle-based adhesive for commercial paper coating applications
 - Worked exclusively under a commercial contract with direct industry contact and reports

Publications:

Google Scholar: <https://scholar.google.com/citations?user=aCKNlcwAAAAJ&hl=en#>
linkedin.com/in/ryan-clauson-1525a766

Lucroy MD, **Clauson RM**, Suckow MA, El-Tayyeb F, Kalinauskas A. Evaluation of an autologous cancer vaccine for the treatment of metastatic canine hemangiosarcoma: a preliminary study. *BMC Vet Res.* 2020 Nov 18;16(1):447. doi: 10.1186/s12917-020-02675-y. PMID: 33208160; PMCID: PMC7672887.

Clauson, R. M., Berg, B., & Chertok, B. (2019). The Content of CpG-DNA in Antigen-CpG Conjugate Vaccines Determines Their Cross-Presentation Activity. *Bioconjugate Chemistry*, 30(3), 561-567. doi: 10.1021/acs.bioconjchem.9b00091

Hongwei Chen, Hongxiang Hu, Chun Tao, **Ryan M. Clauson**, Ila Moncion, Xin Luan, Sangyeul Hwang, Ashley Sough, Kanokwan Sansanaphongpricha, Jinhui Liao, Hayley J. Paholak, Nicholas O. Stevers, Guoping Wang, Bing Liu, and Duxin Sun. (2019). Self-Assembled Au@Fe Core/Satellite Magnetic Nanoparticles for Versatile Biomolecule Functionalization. *ACS Applied Materials & Interfaces*, 11(27), 23858-23869. doi: 10.1021/acsami.9b05544 (

Clauson, R. M., Chen, M., Scheetz, L. M., Berg, B., & Chertok, B. (2018). Size-Controlled Iron Oxide Nanoplatforms with Lipidoid-Stabilized Shells for Efficient Magnetic Resonance Imaging-Trackable Lymph Node Targeting and High-Capacity Biomolecule Display. *ACS Applied Materials & Interfaces*, 10(24), 20281-20295. doi:10.1021/acsami.8b02830

Neenan, M. L., **Clauson, R. M.**, & Tsavalas, J. G. (2015). Hybrid Encapsulation of Photoluminescent Pigments by Emulsion Polymerization and Reactive Heterocoagulation. *Macromolecular Reaction Engineering*, 10(1), 55-62. doi:10.1002/mren.201500038

First Author Manuscripts, In Progress:

Inorganic Virus-Like Nanoparticles for Antigen-Specific Antibody Production; Ryan Clauson, Hongwei Chen and Duxin Sun

(Review) Nanoparticles for Antigen-Specific Antibody Production: The Potential of Viral Mimicry; Ryan Clauson, Hongwei Chen and Duxin Sun

DNA-Tethered Iron-Oxide Nanoplatforms for Subunit Vaccines: A Vehicle for MRI-Monitored Lymph Node Delivery and Activation of CD8+ T-cell Immunity; Ryan Clauson, Lindsay Scheetz, Mingsheng Chen, Brendan Berg and Beata Chertok