Qinghua Guo

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EDUCATION

Cornell University, Ithaca, NY
Master of Public Health, Concentration in Infectious Disease Epidemiology, Expected May 2021
Fudan University, Shanghai, China
Bachelor of Science in Pharmaceutical Science, Sept 2015 - June 2019
University of British Columbia, Vancouver, Canada
Exchange Student in Pharmacology and Critical Analysis in Medicine and Science, July 2017 - August 2017

PUBLICATIONS

- Stout, A. E., **Guo, Q.,** Millet, J. K., & Whittaker, G. R. Viral pathogenesis attributes underlying the bat-origins of SARS-CoV-2 and other zoonotic coronaviruses. *Accepted by* **Comparative Medicine**
- Stout, A., **Guo, Q**. Millet, J., Matos, R., & Whittaker, G. Coronavirus associated with the superfamily Musteloidea, accepted by **mBio**, 2020
- Wang, C., Sun, W., Zhang, J., Zhang, J., **Guo, Q**., & Zhou, X. et al. (2020). An electric-field-responsive paramagnetic contrast agent enhances the visualization of epileptic foci in mouse models of drug-resistant epilepsy. **Nature Biomedical Engineering**. doi: 10.1038/s41551-020-00618-4
- Duan, W., Yue, Q., Liu, Y., Zhang, Y., **Guo, Q**., & Wang, C. et al. (2020). A pH ratiometrically responsive surface enhanced resonance Raman scattering probe for tumor acidic margin delineation and image-guided surgery. **Chemical Science**, 11(17), 4397-4402. doi: 10.1039/d0sc00844c
- Zeng, F., Wu, Y., Li, X., Ge, X., **Guo, Q**., & Lou, X. et al. (2020). Corrigendum: Custom-Made Ceria Nanoparticles Show a Neuroprotective Effect by Modulating Phenotypic Polarization of the Microglia. **Angewandte Chemie International Edition**, 59(43), 18844-18844. doi: 10.1002/anie.202011799
- Wu, Y., Fan, Q., Zeng, F., Zhu, J., Chen, J., & Fan, D. et al. (2018). Peptide-Functionalized Nanoinhibitor Restrains Brain Tumor Growth by Abrogating Mesenchymal-Epithelial Transition Factor (MET) Signaling. **Nano Letters**, 18(9), 5488-5498. doi: 10.1021/acs.nanolett.8b01879

RESEARCH EXPERIENCE

CORNELL UNIVERSITY, ITHACA, NY January 2021 - Present
Bioinformatic analysis of the zoonotic potential of coronaviruses in the mammalian order Eulipotyphla
Research Assistant
Advisor: Professor Gary R. Whittaker, Department of Microbiology and Immunology

- Tested hedgehog spike protein expression and evaluated protease cleavage sites
- Figured out the phylogenetic relationship between Eulipotyphlan coronavirus strains by doing sequence alignments and constructing phylogenetic trees
- Discussed the potential proprotein convertase cleavage sites on Wencheng Sm Shrew coronavirus spike protein through ProP prediction and protein models

CORNELL UNIVERSITY, ITHACA, NY October 2020 - December 2020
Study on the effect that calcium channel blockers have on feline coronavirus
Research Assistant
Advisor: Professor Gary R. Whittaker, Department of Microbiology and Immunology

- Maintained FCWF-4 cell culture lines; conducted viral infections, TCID50 assays, IFA,

and MTT assays

CORNELL UNIVERSITY, ITHACA, NY May 2020 - October 2020
Investigation on the role of CD163 as a receptor for macrophage entry of feline coronavirus
Research Assistant
Advisor: Professor Gary R. Whittaker, Department of Microbiology and Immunology

- Maintained CRFK and PK-15N cell culture lines and validated CD163 expression in cell lines through IFA, qPCR, and TICD50
- Determined rescue of type II feline coronavirus

FUDAN UNIVERSISTY, SHANGHAI, CHINA December 2018 - June 2019
Improvement of the visualization of epileptic foci
Research Assistant
Advisor: Professor Cong Li, Scientific Research Practice in Radiology Department

- Established kainate models of epilepsy
- Operated transmission electron microscopy and visualized the structure of an electrically responsive hybrid micelle
- Processed and analyzed magnetic resonance images
- Engaged in the manuscript writing: wrote the methods section individually and edited the paper
- Drawn illustrations of magnetic resonance tuning mechanisms and development of electrically responsive hybrid micelle

FUDAN UNIVERSISTY, SHANGHAI, CHINA July 2017 - June 2019
Research on pH-responsive probes active in SERRS biosensing for tumor-monitoring and tumor-resection
Research Assistant
Advisor: Professor Cong Li, Scientific Research Practice in Radiology Department

- Designed and synthesized cyanine molecules to get reporter molecules of the probes through condensation reactions; synthesized golden nanoparticles to serve as the basement of the targeted probes
- Utilized TEM and Raman Spectrometer to characterize probes
- Operated skin-fold window chamber and surgery on mice
- Studied cell imaging: incubated AuNP, Probe-PEG, and Probe-wab with oral squamous cells and measured cell ability by Cell Titer-Gl to prove probes' activeness in cell-level
- Demonstrated the effectiveness of the probes and improved the accuracy of tumor resection

JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD August 2018 - October 2018
Investigation on structural roles of collagen I fibers in breast cancer tissue samples
Research Assistant
Advisor: Professor Zaver M. Bhujwalla, Johns Hopkins University School of Medicine

- Utilized MATLAB to process magnetic resonance images of collagen fibers in 48 clinical breast cancer tissue samples and greatly improved the efficiency of the whole process of analysis
- Utilized SPSS to analyze the data, including the contrast, grey scales, correlation, and threshold of the images, and discovered the relationship and significances in collagen fibers' images among four types of breast cancer

FUDAN UNIVERSISTY, SHANGHAI, CHINA Jan 2018-July 2018
Research on the mechanism of peptide-functionalized nanoinhibitor restrain on brain

tumor growth
Research Assistant
Advisor: Professor Cong Li, Scientific Research Practice in Radiology Department

- Fulfilled RA and U87 cell cultures and tested the cytotoxicity by CCK-8; performed an uptake experiment of Den-cMBP to test its solubility
- Developed U87 model glioma in situ and conducted tail intravenous injection for the experiment results on mice: tumor margins of glioma patients and glioma xenografts were presented with overactivation of MET

INTERNSHIPS

CORNELL UNIVERSITY, ITHACA, NY February 2021 - Present
VTPMD 6108 Applied Data Analysis; VTPMD 6105 Biostatistics for Health Sciences
Teaching Assistant
Advisor: Professor Yihong Li, Master of Public Health Program

PEDIATRICS HOSPITAL AFFILIATED TO FUDAN UUNIVERSITY, SHANGHAI, CHINA July 2018-August 2018

- Collected, collated, and analyzed the cases of neonatal septicemia and meningitis using the T-test and ANOVA, discovered the therapeutic and side effects of amikacin
- Conducted research in hospital pharmacy administration and antibiotics control, analyzed health outcomes of pediatric patients

PROJECTS

CORNELL UNIVERSITY, ITHACA, NY July 2020- October 2020
COVID-19 Behavioral Surveillance Program

- Conducted COVID-19 behavioral surveillance through interviews
- Designed the interviews and analyzed the results using R

TECHNICAL SKILLS

Laboratory: Maintenance and purification of cell and tissue cultures, plasmid amplification, media preparation, western blot analysis, PCR, QPCR, ELISA, IFA, TCID-50, MTT, skin-fold window chamber, animal surgery, Raman spectroscopy, chemical synthesis, transmission electron microscopy
Computer: Geneious, Mega-X, Chimera, SAS, R, SPSS, STATA, Visual Basic, MATLAB, Image J, ArcGIS, QGIS, Photoshop

VOLUNTEER EXPERIENCE

FOOD BANK OF SOUTHERN TIER, ITHACA, NY April 2020
Facilitated food aid distribution for COVID-19 impacted population

ITHACA YOUTH BUREAU, ITHACA, NY February 2020 - April 2020
Facilitated students at the Ithaca Middle School and Ithaca High School engagement in mathematic studies

SPCA, ITHACA, NY September 2019 - December 2019
Assisted in taking care of the cats and companion

AIESEC, GALATI, Romania January 2017 - February 2017
Organized activities of traditional Chinese culture displays; Planned the syllabus and teaching methods for classes on the topics of economics and public health