

# Areas of Current Collaboration with NCTR December 2018

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Office of Research, Center for Veterinary Medicine

# Areas of Current Collaboration with NCTR

*Effects of Acute and Chronic Erythromycin Exposure on Intestinal Microbiome and Permeability in an in vitro Human Intestinal Epithelium and Bioreactor Models*

PI: Sangeeta Khare [Division of Microbiology]

Haihong Hao (NCTR), Y B Ahn (NCTR ), Ji Y Jung (NCTR ) Kuppan Gokulan (NCTR), *Silvia A Piñeiro (CVM)*, Katherine M. Williams (NCTR), (Carl E. Cerniglia (NCTR)).

# Areas of Current Collaboration with NCTR

*In vitro study to assess the impact of tetracycline on the human intestinal microbiome*

PIs: Ahn , YB ,Jung JY [Division of Microbiology, NCTR]

Khare S (NCTR), Gokulan K (NCTR), *Piñeiro SA (CVM)*, Cerniglia CE (NCTR).

# Areas of Current Collaboration with NCTR

*Effects of residual levels of tetracycline on the barrier functions of human intestinal epithelial cells.*

PI: Sangeeta Khare [Division of Microbiology]

Gokulan K (NCTR), *Pineiro SA (CVM)*, Cerniglia CE (NCTR)

# Areas of Current Collaboration with NCTR

*Evaluation of Potential Antimicrobial Resistance Development in Human Intestinal Microbiota Following Long-Term Exposure to Residual Concentrations of Antimicrobial Drugs*

PI: Sangeeta Khare [Division of Microbiology]

YB Ahn (NCTR ), Jung JY, (NCTR), Gokulan K (NCTR), *Pineiro SA (CVM)*, Cerniglia CE (NCTR)

# Areas of Current Collaboration with NCTR

*Develop a gut-on-a-chip model for determining the impact of antimicrobial drug residues on the human intestinal microbiome, including the development of antimicrobial resistance*

PI: *Daniel Tadesse [OR, CVM]*

*Pineiro SA (CVM), Jeff Gilbert (CVM)*, Cerniglia CE (NCTR), outside government collaboration, CFSAN, and other FDA Centers as needed

# Areas of Current Collaboration with NCTR

*Role of Plasmid-encoded Factors in Salmonella enterica Virulence*

PI: Steve Foley [Division of Microbiology]

Co-Investigators: Bijay K. Khajanchi, Rajesh Nayak, Sangeeta Khare, *Jeff Gilbert (CVM), Ruby Singh (CVM), Shaohua Zhao (CVM)*, Kuppan Gokulan, Joanna Deck

# Areas of Current Collaboration with NCTR

*Advance Safety Assessments of FDA-regulated Products Using High-Throughput and High-Content Quantitative Approaches in Cultured Human Cells to Evaluate Genotoxicity*

PI: Xiaoqing Guo [Division of Genetic and Molecular Tox]

Co-investigators: Robert Heflich, Nan Mei, Mugimane Manjanatha, *Tong Zhou (CVM)*, Li You



# Areas of Current Collaboration with NCTR

*Salmonella enterica* Virulence and Plasmid Characterization Databases and Analysis Tool Development

PI: Jing Han [Division of Microbiology]

Co-investigators: Steven Foley (NCTR), *Shaohua Zhao (CVM)*, *Chih-Hao Hsu (CVM)*, Wen Zou (NCTR), *Daniel Tadesse (CVM)*, Hailin Tang (NCTR), Ashraf Khan (NCTR), and Rajesh Nayak (NCTR)

# Areas of Current Collaboration with NCTR

*Using Metabolically Competent Human Cell Lines to Perform High-Throughput Genotoxicity Testing*

PI: Nan Mei [Division of Genetic and Molecular Tox]

Co-investigators: Xiaoqing Guo, Mugimane Manjanatha, Lei Guo, Si Chen, *Tong Zhou (CVM)*, Kristine Witt (NIH/NIEHS) and Menghang Xia (NIH/NCATS)

# Areas of Current Collaboration with NCTR

***New** Assessment of mutagenicity of nanomaterials using whole genome sequencing of mammalian cells expanded from single-cell clones*

PI: Tao Chen [Division of Genetic and Molecular Toxicology]

Co-investigators: Anil Patri, Huixiao Hong, Tim Robison, **Tong Zhou (CVM)**, Jian Yan

# Areas of Current Collaboration with NCTR

*New Evaluation of cadmium oxide nanoparticles as a nanoparticle-type positive control for in vitro toxicity assays*

PI: Tao Chen [Division of Genetic and Molecular Toxicology]

Co-investigators: Jian Yan, Yin Chen, Anil Patri, *Tong Zhou (CVM)*, and an ORISE Postdoc

# Areas of Current Collaboration with NCTR

*Studies on the Intrinsic Structural Multidrug Efflux Pump Mechanisms in Antimicrobial Resistant Salmonella enterica and their Role in Antimicrobial Resistance (protocol under development)*

PI: Ashraf Khan [Division of Microbiology]

Co-investigators: *Shaohua Zhao (CVM)*, Mohamed Nawaz (NCTR), Steven Foley (NCTR)

# Potential Areas of Future Collaboration with NCTR

- ADME of compounded or unapproved drugs





## NARMS Mission

1. Monitor trends in antimicrobial resistance among foodborne bacteria from humans, retail meats, and animals
2. Disseminate timely information on antimicrobial resistance to promote interventions that reduce resistance among foodborne bacteria
3. Conduct research to better understand the emergence, persistence, and spread of antimicrobial resistance
4. Assist the FDA in making decisions related to the approval of safe and effective antimicrobial drugs for animals