Mr. CHEN, Yufei
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EDUCATION

- University of Manitoba, CANADA
  Ph.D. in Pharmacy, Faculty of Pharmacy, University of Manitoba, 2011.5-present
  Cumulative Overall GPA: 4.07 (till 2014.1)
- University of Manitoba, CANADA
  M.Sc. in Pharmacy, Faculty of Pharmacy, University of Manitoba, 2009.9-2011.5
- Jilin University, P.R.CHINA
  B.S. in Pharmacy Engineering, College of Life Science, 2003.9-2007.7
  Cumulative Overall GPA: 88.38/100; Major: 89.67/100

RESEARCH INTERESTS

My current research interest lies in the area of drug delivery and its applications to improve global healthcare. I have a strong interest in developing cost-effective drugs and novel drug delivery strategies, which will enhance the vaccination and treatment of key major diseases. Innovative approaches such as pharmaceutical and immunological approaches will be undertaken to achieve this goal.

CURRENT SUPERVISOR

- Professor Emmanuel A. Ho (Ph.D. Supervisor)

PROFESSIONAL EXPERIENCES

- **PhD Student, under Supervision of Prof. Emmanuel Ho, Faculty of Pharmacy, University of Manitoba, CANADA, 2011.5-present**
  - Leader in the "Intravaginal Ring (IVR) - An Innovative Drug Delivery Strategy for the Prevention of HIV-1 Infection" Project, 2011,5-present
    - Designed novel two-component IVR delivery systems for the delivery of protein/peptides
    - Established RP-HPLC methods for the quantitation of BSA, LL-37, insulin, and HIV Env-gp120 fragment release rates
    - Performed cytotoxicity studies and quantitated inflammatory cytokine productions in *in vitro* vaginal and cervical epithelial cells using MTS assay and ELISA, respectively
    - Performed thermal stability tests to determine the stability of BSA, LL-37 via Tris-Tricine SDS-PAGE and Native-PAGE
    - Performed the induction and quantitation of neutralization antibody against HIV Env-gp120 in *in vitro* PBMC study using HIV Env-gp120 fragment and IL-12 as the adjuvant
    - Designed and x-ray imaged a novel implant for testing the release rates (minimal 30 days) of protein/peptides from a protein/peptide-holding capsule in rabbit

- Assisted in training summer undergraduate students and junior graduate members in Dr. Ho's research team

- Leader in the "Limiting HIV Target Cells by Inducing Immune Quiescence in the Female Genital Tract" Project, 2012,10-present
  - Designed matrix and reservoir-based IVR delivery systems for the delivery of hydroxychloroquine (HCQ)
  - Established solid RP-HPLC methods for the quantitation of hydroxychloroquine release
  - Performed cytotoxicity studies and quantitated inflammatory cytokine productions in *in vitro* vaginal and cervical epithelial cells using MTS assay and ELISA, respectively
  - Performed the colony formation assay to determine the toxicity of biomaterials on epithelial cells
  - Determined the IC_{50} of HCQ on epithelial cells and SupT1 T cell line
  - Performed thermal stability tests to determine the stability of HCQ in the IVR delivery systems

- **Master Student, under Supervision of Prof. Frank J Burczynski, Faculty of Pharmacy, University of Manitoba, CANADA, 2009.9-2011.5**
  - Leader in the "Fatty Liver Cell Culture Model" Project, 2010,7-2011.5
    - Generated the dose-dependent cytotoxicity curve of rat hepatoma cell line (1548) treated by different concentrations of free fatty acids
    - Detected free fatty acid level in treated cells and generated fluorescent pictures of those cells indicating the intracellular lipid droplets accumulation
    - Performed the Western Blotting to identify the alterations of liver fatty acid binding protein expression during the 6-day free fatty acid treatment
  - Leader in an antibody drug 1-week stability assay project, this drug was used to treat Wet Age-Related Macular Degeneration, 2010.12-2011.1
    - Detected the activity of the drug by established antibody-sandwich ELISA assay in predetermined intervals
  - Leader in an antibody drug 1-month stability assay project, this drug was used to treat Wet Age-Related Macular Degeneration, 2010.7-2010.8
    - Detected the activity of the drug by established antibody-sandwich ELISA assay in predetermined intervals
  - Assisted in the "Cytotoxicity Evaluation of DEET and Oxybenzone in Hepatocyte Proliferation" Project, 2010.6-2010.8
    - Assisted in experimental design and responsible for maintaining and seeding the cells for the WST-1 cell proliferation tests after different concentrations of DEET and Oxybenzone treatment
  - Leader in an antibody drug 3-day stability assay project, this drug was used to treat Wet Age-Related Macular Degeneration, 2010.3-2010.4
    - Detected the activity of the drug by establishing an antibody-sandwich ELISA assay in predetermined intervals

- **Research Assistant, Prof. Weike Si's Lab, Department of Clinic Hematology, The Third Military Medical University, P.R.CHINA, 2007.9-2009.7**
  - Assisted in the "Expression of Wnt5a Gene in Hematologic Diseases and Leukemic Cell Lines" and "Expressions of Wnt5a gene in lymphocytic malignant tumor" projects
  - Detected the expression of Wnt5a gene by RT-PCR, and used Agarose Gel Electrophoresis to analyze the negative expression of Wnt5a in different cell lines and specimen of 31 cases
  - Detected the expression of Wnt5a gene by semi-quantitative RT-PCR in 19 cases of lymphocytic malignant tumor, 11 cases of remission of lymphocytic malignant tumor, 27 healthy adults and 10 samples of umbilical cord blood $CD34^+$ cells
  - Assisted the professor with all grading of laboratory coursework, helped students in labs with their experiments
- **Undergraduate Thesis, Prof. Jingkai Gu's Lab, Research Center For Drug Metabolism, Jilin University, P.R.CHINA, 2007.1-2007.6**
  - Determined the assay validation by establishing the linear regression of calibration curves with calibration standard samples and quality control samples
  - Evaluated the ESI response of analyte and chose negative ionization mode for LC-MS/MS analysis
  - Evaluated the specificity and matrix effects, linearity and sensitivity, accuracy and precision, extraction recovery and analyte stability in the method validation of Domperidone
  - Utilized LC-MS/MS to analysis the bioavailability and bioequivalence of Domperidone in the human plasma of 20 volunteers
- **Research Intership (among 5 of 30 qualified undergraduate students who had the outstanding performance in the Jilin University Undergraduate Research Project), Prof. Wei Kong's Lab, Vaccine Research Center, Jilin University, P.R.CHINA, 2006.9-2006.12**
  - Assisted in the project "The Expression of Adenine Deaminase MBP Fusion Protein in E.coli"
  - Used primer I (containing EcoRI restriction site), prime II (containing SalI restriction site) and PHH1010 Plasmid with Taq polymerase to amplify the target Ade gene with PCR
  - Joined the target Ade gene and pGEM-T Easy vector through TA cloning
  - Transformed the reconstructed plasmid pGEM-T Easy-Ade by calcium chloride transformation method into E. coli JM109 competent cells, identified by blue-white screening
  - Transformed the pMal-c2x plasmid by calcium chloride transformation method into E. coli TB1 competent cells, identified by blue-white screening and Amp resistance screening
  - Used EcoRI + SalI double digestion on both plasmid and joined the recovered products with T4-DNA ligase
  - Amplified the recombinant pMal-Ade plasmid by calcium chloride transformation method, analyzed the expression products with SDS-PAGE and determined the activity
- **Project Leader, Prof. Lirong Teng's Lab, Central Laboratory Of General Biology, P.R.CHINA, Jilin University, 2005.9-2006.8**
  - Leader in the "Rapid Determination of Components in drugs/Chinese herbs Using Near Infrared and Ultraviolet Spectroscopy" Project (drugs such as GanKang, Guan Baifu etc.)
  - Created and arranged the research schedule for our project team
  - Led to observe and collect abundant information of the medical components of some classical

Chinese herbs and chemometrics pretreatment methods in this area
- Applied Support Vector Machine and Support Vector Regression, BP neural network, Wavelet Transformation and etc. to the data mining of the NIR/UV spectrum
- Responsible for handling with unexpected difficulties and data treatment issues like accident, automatic data treatment and data mining from spectrum

- **Research Intership, Prof. Lirong Teng's Lab, Central Laboratory Of General Biology, P.R.CHINA, Jilin University, 2004.10-2005.6**
  - Assisted Laboratory scientists with preparing research and practice of whole project
  - Involved in the project "Rapid Determination of Rifampicin and Isoniazide Tablets Using Near Infrared Diffuse Reflectance Spectroscopy"
  - Utilized NIR/UV spectroscopy to construct quantitative analysis models via chemometrics (Partical Least Squares method), analyzing the spectrum data of 41 Rifampicin and Isoniazide Tablets samples bought from three pharmaceutical factories
  - Made AutoIt scripts to automatically treat spectrum data among different analytical softwares such as Origin, TQ Analysis and Excel interactively, reduced the human mistakes and analytical time consumption and improved efficiency by 5-fold

PUBLICATION

- **Yufei Chen**, Keith R. Fowke, and Emmanuel A. Ho. A Polyether Urethane Intravaginal Ring for the Sustained Delivery of Hydroxychloroquine. (Accepted by PLoS ONE, 2014)
- Sidi Yang, **Yufei Chen**, Kaien Gu, Alicia Dash, Casey L. Sayre, Neal M. Davies, Emmanuel A. Ho. Novel Intravaginal Nanomedicine for the Targeted Delivery of Saquinavir to CD4+ Immune Cells. International Journal of Nanomedicine, Aug;8: 2847-2858, 2013
- Sidi Yang, **Yufei Chen**, Roien Ahmadie, Emmanuel A. Ho. Advancements in the field of intravaginal siRNA delivery. Journal of Controlled Release. 2013 Apr 10; 167(1):29-39.
- Daryl J. Fediuk, Tao Wang, **Yufei Chen**, Fiona E. Parkinson, Michael P. Namaka, Keith J. Simons, Frank J. Burczynski, Xiaochen Gu. Metabolic disposition of the insect repellent DEET and the sunscreen oxybenzone following intravenous and skin administration in rats. International Journal of Toxicology. 2012 Sep-Oct; 31(5):467-76.
- Frank J. Burczynski, Guqi Wang, David N guyen, **Yufei Chen**, Howard J. Smith, Yuewen Gong. Silymarin and hepatoprotection. Zhong Nan Da Xue Xue Bao Yi Xue Ban. 2012 Jan; 37(1):6-10.
- Daryl J. Fediuk, Tao Wang, **Yufei Chen**, Fiona E. Parkinson, Michael P. Namaka, Keith J. Simons, Frank J. Burczynski, Xiaochen Gu. Tissue disposition of the insect repellent DEET and the sunscreen oxybenzone following intravenous and topical administration in rats. Biopharmaceutics & Drug Disposition. 2011 Oct; 32(7):369-79.
- Huijia Lu, **Yufei Chen**, Chaojun Jiang, Jian Shi, Weiliang Guo, Lirong Teng. Rapid Determination of Rifampicin and Isoniazide Tablets Using Near Infrared Diffuse Reflectance Spectroscopy. Chinese Journal of Pharmaceutical Analysis. 2007, 27(10): 1528

PUBLICATION (currently in preparation or submitted)

- **Yufei Chen**, Wei Li, Yuewen Gong, Guqi Wang, Frank J Burczynski. Hepatoprotective role of liver fatty acid binding protein in a non-alcoholic fatty liver disease cell culture model. (Submitted)

- **Yufei Chen**, Sidi Yang, and Emmanuel A. Ho. Development of an Analytical Method for the Rapid Quantitation of Peptides in microbicide Gels. (in preparation)

ABSTRACT

- **Yufei Chen**, Roien Ahmadie, Nathan Baart, Emmanuel A. Ho. An Innovative Two-Component Intravaginal Ring for Sustained Protein Delivery. Abstract accepted for the 2013 Canadian Society for Pharmaceutical Sciences (CSPS) Annual Symposium in Vancouver, BC, CANADA, June, 2013.
- Alicia Dash, Sidi Yang, **Yufei Chen**, Kaien Gu, Casey Sayre, Neal Davies, and Emmanuel A. Ho Development and Characterization of a Novel Intravaginal Nanomedicine for the Targeted Delivery of Saquinavir to $CD4^+$ T-Cells. Abstract accepted for the 2013 Canadian Society for Pharmaceutical Sciences (CSPS) Annual Symposium in Vancouver, BC, CANADA, June, 2013.
- **Yufei Chen**, Emmanuel A. Ho. *In vitro* Characterization of a Hydrophilic Matrix Intravaginal Ring for the Sustained Delivery of Hydroxychloroquine. Abstract presented in the 2013 Manitoba Pharmacy Conference in Winnipeg, MB, CANADA, April, 2013.
- Sidi Yang, George Panos, Deborah Chan, **Yufei Chen**, Emmanuel A. Ho. Design and Characterization of a Nanomedicine for the Targeted Delivery of Saquinavir. Poster presentated at the 39st Annual Meeting & Exposition Controlled Released Society, Quebec City, Quebec, 2012.
- **Yufei Chen**, Wei Li, Yuewen Gong, Frank J. Burczynski. Establishing a Nonalcoholic Fatty Liver Disease Cell Culture Model. Abstract presented in the 2nd Canadian Pharmacy Education & Research Conference & 68th Association of Faculties of Pharmacy of Canada (AFPC) Annual General Meeting in Winnipeg, MB, CANADA, June, 2011.
- David Nguyen, **Yufei Chen**, Jing Yan, Frank J Burczynski. Cellular Antioxidant Effect of Diltiazem and Silymarin. Journal of Pharmacy & Pharmaceutical Sciences. (Abstract), 2010.

PROCEEDING

- Chaojun Jiang, **Yufei Chen**, Bing Wang, Xiangyong Cui, Feng Gao, Mengliang Zhang, Lirong Teng. Rapid determination of paracetamol and amantadine hydrochloride in Gankang using NIRS. Near infrared spectroscopy technology in modern China ——— proceedings of the 1st Chinese conference on near infrared spectroscopy, China Petrochemical Press, 2006, 10.

THESE

- **Yufei Chen**. Role of Liver Fatty Acid Binding Protein in Fatty Liver Cell Culture Model. MSc thesis,Unviersity of Manitoba, 2012.

HONOR

- The University of Manitoba – Faculty of Pharmacy Coordinated Studentship, Manitoba Health Research Council (MHRC), 2012.6
- MPhA / William G. Eamer Graduate Scholarship in Pharmacy, Faculty of Pharmacy for the Fall 2011 and Winter 2012 session, University of Manitoba, 2011.11
- University of Manitoba Graduate Fellowship, University of Manitoba, 2011.6
- The University of Manitoba – Faculty of Pharmacy Coordinated Studentship, Manitoba Health Research Council (MHRC), 2011.6 (Declined)

- International Graduate Student Entrance Scholarship for Fall 2009, University of Manitoba
- Specialized Scholarship of Excellent Achievements for the 2006-2007 academic year, Jilin University, 2007.6
- Second Prize of the Undergraduate Scientific Academic Works in the Fifth Innovation Experiments Competition, College of Life Science, Jilin University, 2007.6
- Third Prize in the Jilin University Undergraduate Research Project, Jilin University, 2006.6

SKILLS&INTERESTS

- Computer: programing (R language and Linux), data analysis (GraphPad Prism, Origin, Matlab, SigmaPlot etc.), micro-embedded computing technology, internet website design, graphic design (Fireworks, Photoshop etc.)
- Sports: Ping pang, Football, Basketball, Swimming
- Classical Chinese philosophy
- Western classic literature and music

EXTRACURRICULAR ROLES

- Designer and maintainer for the website of Laboratory for Drug Delivery and Biomaterial, Faculty of Pharmacy, University of Manitoba, 2013.3-present
- Assist in the undergraduate course "Pharmaceutical Analysis Lab (PHRM 3320)" as a teaching assistant, Faculty of Pharmacy, University of Manitoba, 2013.10-2013.12
- Secretary for the Faculty of Pharmacy and the University of Manitoba Student Chapter of the American Association of Pharmaceutical Scientists (AAPS), 2012.11-present
- Graduate student representative for The Pharmacy Local Area Health and Safety Committee, Faculty of Pharmacy, University of Manitoba, 2012.10-present
- Vice President of Communication Section of Student Union for the College of Life Science, Jilin University, 2005-2007