

Brian Michael Chung, PhD.

Business address: Weber State University
Department of Zoology
1415 Edvaldson Street, Mail Code 2505
Ogden, UT 84408
(801) 626-6191
brianchung@weber.edu

Education

- 1990 – 1995: **B.A. Political Science**, University Of Calgary, Calgary, Alberta, Canada
- 1996 – 2001: **PhD, Medical Sciences, Gastrointestinal Physiology**, University Of Calgary, Calgary, Alberta, Canada
 - Thesis title: “The Regulation of Intestinal Sugar Transport”

Current Position: Professor of Zoology, Department of Zoology, College of Science, Weber State University, Ogden, UT (2007-present)

Employment Experience

1. 2007-present: Associate Professor of Zoology, Weber State University, Department of Zoology
 - Administer Zoology 2100 (Human Anatomy) program
 - Administer additional courses such as Zoology 1020 (Human Biology), Zoology 3099 (Teaching the Human Anatomy Laboratory), Zoology 3100 (Advanced Human Anatomy) and Zoology 4990 (Senior Seminar)
 - Academic service:
 - University-level:
 - Institutional Animal Care and Use Committee chairperson

May 2022

- Research, Scholarship and Professional Growth Committee member & reviewer
 - Course Fees committee member & reviewer
 - College of Science-level:
 - Academic Resources and Computing Committee member & reviewer
 - Faculty search committee member (external), College of Science, Department of Botany, Plant Physiologist tenure-track faculty, Spring 2022
 - Department-level:
 - Lead instructor and coordinator for Human Anatomy program
2. 2004: Nutrition Week 2004, Las Vegas, Nevada
Keystone Speaker: “*New Insights into the Regulation of Intestinal Sugar Transport*”
- State of the art lecture as part of “*Regulation of Nutrient Transport and Interactions with Disease*”, moderated by Owen McGuinness, PhD.
 - Review of current state of the art in intestinal sugar transport
3. 2001-2003: Yale School of Medicine, New Haven, Connecticut, USA
Postdoctoral Research Associate (Internal Medicine, Nephrology)
- Examined interactions between megalin (gp-330), sodium-hydrogen exchanger 3 (NHE3) and disabled analogue-2 (Dab2) in opossum kidney (OK) model of renal proximal tubule
 - Cloned and sequenced portions of megalin and Dab-2 from OK cell line for use in antibody development, immunoprecipitation, and Far-Westerns
4. 2003-2007: University of Illinois at Urbana-Champaign, Illinois, USA
Postdoctoral Research Associate (Food Science and Human Nutrition)
- Examine the effects of butyrate or Glucagon-like Peptide 2 (GLP-2) on intestinal nutrient transport, intestinal blood flow and intestinal adaptation following massive small bowel resection in neonatal piglets
 - Develop a model of neonatal necrotizing enterocolitis in piglets
 - Analyze bloodflow and subsequent intestinal responses following ischemia-reperfusion injury in neonatal piglets
 - Examine the effect of the short-chain fatty acid butyrate on intestinal nutrient transport
 - Mentor graduate students and undergraduate research staff employed by Dr. K.A. Tappenden
3. 2001-2003: Ski Mount Southington, Southington, Connecticut, USA
Snowboard Instructor

- Provided snowboarding instruction for Ski/Snowboard School clients
4. 2001: Rapid-Med Plus, Calgary, Alberta, Canada
Parolee Monitor
 - Contracted to administer drug and alcohol urinalysis examinations to paroled inmates for Correctional Services Canada
 5. 1995-2000: Canada Olympic Park, Calgary, Alberta, Canada
Snowboard Instructor
 - Canadian Association of Snowboard Instructors Level 3 Instructor for Ski/Snowboard School clients
 - Volunteer snowboard instructor for Canadian Association for Disabled Skiing program
 6. 1992 – 1996: University of Calgary, Calgary, Alberta, Canada
Part Time Laboratory Technician
 - General lab chores, assays, and animal surgeries
 - Initiated and completed two research projects that resulted in peer-reviewed publication
 - Assisted in the completion of at least 3 additional research projects that were also subsequently peer-reviewed publications
 - Prepared and submitted abstracts to numerous Digestive Disease Week and Canadian Association of Gastroenterology conferences
 - Submitted and revised two peer-reviewed publications
 7. 1988 – 1992: University of Calgary, Calgary, Alberta, Canada
Animal Care Technician
 - Vivarium staff, Biohazard Level 3 Clearance

Teaching Experience

1. 2007-present: Weber State University
 - Lead instructor & program coordinator, Zoology 2100 (Human Anatomy), Zoology 3099 (Teaching the Human Anatomy Laboratory), and Zoology 3100 (Advanced Human Anatomy) courses,
 - Zoology 1020 (Human Biology)
 - Zoology 4210 (Advanced Human Physiology)
 - Zoology 3600 (Comparative Physiology)

May 2022

- Zoology 4990 (Senior Seminar)
 - Zoology 4830 (Readings in Zoology)
2. May-June 2004: University of Illinois at Urbana-Champaign, Illinois, USA
 - Visiting Lecturer: Food Science and Human Nutrition 120 “Contemporary Nutrition”
 - Instructor for Food Science and Human Nutrition 120 (FSHN 120, Contemporary Nutrition), Summer-1 session (May 17 - June 11, 2004).
 - Administer & instruct daily (Monday-Friday) 10:00-12:00
 3. February 2004: Nutrition Week 2004, Las Vegas, Nevada
 - Keystone Speaker: State of the art lecture (CME-credited) as part of “*Regulation of Nutrient Transport and Interactions with Disease*”, (Moderator: Dr. Owen McGuinness)
 - “New Insights into the Regulation of Intestinal Sugar Transport”
 4. January 2004: University of Illinois at Urbana-Champaign, Illinois, USA
 - Guest Lecturer: Food Science and Human Nutrition 520 “Advanced Clinical Nutrition” (Coordinator: Dr. K.A. Tappenden)
 - “*Water Balance, Osmolality Regulation, and Acid-Base Balance*”
 5. February 2003: University of Illinois at Urbana-Champaign, Illinois, USA
 - Guest Lecturer: Nutritional Sciences 320 “Nutritional Aspects of Disease” (Coordinator: Dr. K.A. Tappenden)
 - “*Nephrolithiasis*”
 6. Winter 2001-2003: Ski Mount Southington, Southington, Connecticut, USA
 - Snowboard Instructor for Mount Southington Ski School (Ski School Head: S. Positano)
 7. Winter 2000-2001: Canada Olympic Park, Calgary, Alberta, Canada
 - Canadian Association of Snowboard Instructors, Level 3 Certified Snowboard Instructor
 - Volunteer Snowboard Instructor/aid with Canadian Association for Disabled Skiing/Snowboarding, Calgary Zone (Snowboard coordinator: B. Langley)
 8. 1999-2000: University of Calgary, Calgary, Alberta, Canada
 - Session Lecturer: Medical Science 755.02 “Anatomy and Physiology for Engineers” (Coordinator: Dr. J. Matyas)

- “*Gastrointestinal Anatomy and Physiology*”
9. 1997-2001: Scottish Tradition School of Piping, Calgary, Alberta, Canada
- Head Percussion Instructor/Arranger (Principal: Kenneth Rogers)

Recent awards:

- Weber State University, Presidential Teaching Excellence Award, 2020,
 - Honored for helping students achieve significant success based through student nomination,
- WildCATT Faculty Collaboration Award, 2022,
 - Recognition for collaborative efforts with Weber State University Disability Services and WildCATT (Creating Achievement Through Transition),

Reviewer: Gastroenterology, Journal of Nutrition, Journal of Parenteral and Enteral Nutrition, Journal of Clinical Nutrition, Journal of Clinical Gastroenterology, American Journal of Physiology

Professional Memberships

1. American Society of Parenteral and Enteral Nutrition (2003-2017)
2. American Gastroenterological Association (2004-2017)
3. American Physiological Society (2012-2017)
4. Human Anatomy and Physiology Society (2017-2020)

Relevant Scientific Techniques

Biochemistry: Protein assays (Lowrey, Bradford), enzymatic assays (Dissacharidases, Na⁺/K⁺/ATPase, Alkaline phosphatase) and TUNEL apoptosis assay.

Morphology & Histology: Routine histology (frozen and paraffin sections), immunohistochemistry, transmission electron microscopy and *in situ* hybridization carried out on various animal tissues as well as cell culture monolayers.

Cell Biology: Brush border and microsomal membrane isolations, membrane vesicle tracer uptake kinetics via rapid filtration and various cell culture models.

Electrophysiology: Electrophysiological analyses of ion and nutrient transport across intestinal tissues and cell monolayers by Ussing chambers (voltage-clamped, short-circuit current analyses).

Molecular Biology: 5' and 3' rapid amplification of cDNA ends (RACE), RNA and DNA isolation, computer-based RNA, DNA and protein sequence analyses, Polymerase Chain Reaction (PCR), bacterial and eukaryotic transformation, cloning, subcloning, Southern and Northern blotting and short inhibitory RNA (siRNA) design and employment.

Protein Chemistry: SDS-PAGE, Western immunoblotting, Far-Western (overlay), immunoprecipitation affinity purification, fusion-protein design and purification.

Animal and surgical models: Animal handling skills ranging from rodents up to domestic animals, numerous surgical models including: massive small bowel resection, central intravenous line implantation, Total Parenteral Nutrition (TPN), gastric feeding tube implantation, ischemia-reperfusion injury, and arterial blood flow rate analyses carried out in various animal species.

Professional Publications

Macronutrient digestion, absorption and metabolism (B.M. Chung and K.A. Tappenden). Chapter 8, in Clinical Nutrition: a Guide for Gastroenterologists, Alan Buchman editor. 2007, Slack Incorporated, West Deptford, N.J.

Human Anatomy Lab Manual, B.M. Chung and R.A. Meyers.

- Editions 1-4 published by bluedoor, LLC, Minneapolis, MN (2016-2019),
- Editions 5-7 published by Macmillan Learning Curriculum Solutions, Plymouth, MI (2020-present).

Peer Review Publications

“Nemertean taxonomy – Implementing changes in the higher ranks, dismissing Anopla and Enopla.” Strand, M, J. Norenburg, J.E. Alfaya, F.A. Fernandez-Alvarez, H.S. Andersson, S.C.S. Andrade, T. Bartholomaeus, P. Beckers, G. Bigatti, I. Cherneva, A. Chernyshev, B.M. Chung et al, **Zoologica Scripta**, 48(1), 118-119, 2019.

“Preliminary report of a neurokinin-like receptor gene sequence for the nemertean *Paranemertes sp.*” Chung, BM, C.L. Thomas, R.C. Stevens, L.N. Palmere & R.K. Okazaki, **Zoological Science**, 32(6): 567-570, 2015.

"Complex dietary protein improves growth through a complex mechanism of intestinal peptide absorption and protein digestion." Hansen, S.A., Ashley, A. & B.M. Chung, **Journal of Parenteral and Enteral Nutrition**, 39(1): 95-103, 2015.

“Linking receptor-mediated endocytosis and cell signaling: Evidence for regulated intramembrane proteolysis (RIP) of megalin in proximal tubule.” Z.Zou, B. Chung, T. Nguyen, S. Mentone, B. Thomson, D. Biemesderfer. **Journal of Biological Chemistry** 279(33): 34302-34010, 2004.

“The effect of massive small bowel resection and oral epidermal growth factor therapy on SGLT-1 distribution in rabbit distal remnant.” B.M. Chung, L.E. Wallace, R.K. Winkfein, E.V. O’Loughlin, J.A. Hardin, D.G. Gall. **Pediatric Research**, 55(1): 19-26, 2004.

“The effect of epidermal growth factor on the distribution of SGLT-1 in rabbit jejunum.” B.M. Chung, L.E. Wallace, J.A. Hardin, D.G. Gall. **Canadian Journal of Physiology and Pharmacology**, 80: 872-878, 2002.

“Effect of proinflammatory interleukins on jejunal nutrient transport.” J. Hardin, K. Kroeker, B.M. Chung, D.G. Gall. **Gut**, 47: 184-191, 2000.

“Role of actin in EGF-induced alterations in enterocyte SGLT-1 expression.” B.M. Chung, J.K. Wong, J.A. Hardin, D.G. Gall. **American Journal of Physiology**, 276: G463-469, 1999.

“The effect of Epidermal Growth Factor on brush border surface area and function in the distal remnant following resection in the rabbit.” J.A. Hardin, B.M. Chung, E.V. O’Loughlin, D.G. Gall. **Gut**, 44: 26-32, 1999.

Abstracts/Presentations

“Improving anatomic instruction and comprehension of female reproductive structures.”

B. Dall, **B.M. Chung**.

- Poster at the 2022 Weber State University Undergraduate Research Symposium & Celebration, Ogden, UT

“Examination of the invertebrate tachykinin receptor gene.” A.Ashfaq, A.G. Malan, R.

DuBose, R. Stevens, L. Palmere, R. Okazaki, **B.M. Chung**.

- Oral presentation at the 9th International Meeting on Nemertean Biology, Sylt, Germany, 2018

“Histologic analysis of nemertean osmotic stress.” R. DuBose, A. Ashfaq, A. Malan,

R.K. Okazaki, **B.M. Chung**.

- Oral presentation at the 9th International Meeting on Nemertean Biology, Sylt, Germany, 2018

“Role of Ca⁺⁺ and cAMP on nemertean heat-shock gene expression following environmental stress.” A. Malan, A. Ashfaq, R. DuBose, S. Naveed, K. Peterson, L. Palmere, N. Amlaw, R.K. Okazaki, **B.M. Chung**.

- Oral presentation at the 9th International Meeting on Nemertean Biology, Sylt, Germany, 2018

“Novel identification of a neurokinin receptor-like gene in nemertean *Paranemertes peregrine*.” **B.M. Chung**, R.C. Stevens, C.L. Thomas, L.N. Palmere & R.K. Okazaki

- Presented as oral presentation at 8th International Conference on Nemertean Biology, Tsingtao, China, June 2014

"Polymeric diet stimulates more efficient rehabilitation than elemental diet in a model of refeeding syndrome." Hansen, S.A, Ashley, A. & **B.M. Chung**

- Presented as oral presentation at 2013 Clinical Nutrition Week, Phoenix, AZ, February 2013

"Dietary protein influences growth through a complex mechanism coupling proteolysis and intestinal peptide transporter expression." S.A. Hansen, A. Ashley & **B.M. Chung** **Gastroenterology**, Volume 141, Supplement 1, Issue 5, S1142, May 2012

- Oral presentation at Digestive Disease Week 2012, San Diego, CA.

“Using mannequins to aid in teaching the human anatomy laboratory.” S. Geilmann, M. LeeMaster, **B.M. Chung**.

- Poster at the 2019 Human Anatomy and Physiology Society Annual Meeting, Portland, OR.

“Novel and economical shoulder model for bursae injections.” R. Carter, G. Beatie, **B.M. Chung**.

- Poster at the 2019 Human Anatomy and Physiology Society Annual Meeting, Portland, OR.

“Use of lasers to identify delicate structures in the human anatomy laboratory.” K. Friedel, T. Odenwalder, **B.M. Chung**.

- Poster at the 2019 Human Anatomy and Physiology Society Annual Meeting, Portland, OR.

“A potentially lower-cost alternative to cadaver immersion tanks for long-term cadaver storage.” T. Odenwalder, K. Friedel, **B.M. Chung**.

- Poster at the 2019 Human Anatomy and Physiology Society Annual Meeting, Portland, OR.

“How painted bones aid undergraduate students in learning the human skeletal system.” A. Mathews, C. Ross, **B.M. Chung**.

- Poster at the 2019 Human Anatomy and Physiology Society Annual Meeting, Portland, OR.

“*Caenorhabditis elegans* as a model of amino acid and peptide absorption in intestinal failure.” Mohn, W.C., Stevens, R.C., Ashley, A., Okazaki, R.K. & **B.M. Chung**

- Awarded top abstract submission and Fellows Travel Grant at the 6th International Pediatric Intestinal Failure and Rehabilitation Symposium in Chicago, IL, September 2010

“*Caenorhabditis elegans* as a developmental model of intestinal peptide and amino acid transport.” Mohn, W.C., Stevens, R.C., Ashley, A., Okazaki, R.K. & **B.M. Chung**
Gastroenterology, Volume 140, Supplement 1, Issue 5, S-747-S748, May 2011

- Presented at 2011 Digestive Disease Week, Chicago, IL, May 2011

“Luminal butyrate elicits a rapid increase in active glucose transport in the rat ileum.” **B.M. Chung**, D.Z. Gilbert, K.A. Tappenden.

- Oral presentation at American Society of Parenteral and Enteral Nutrition, Nutrition Week 2004, Las Vegas, Nevada.
- Awarded 3rd place, Intestinal Failure Paper Session
- Facilitated with Nutrition Week Travel grant

“Differential effects of EGF on the remnant ileum following massive small bowel resection.” **B.M. Chung**, L.E. Wallace, B. Winkfein, J.A. Hardin, D.G. Gall.

- Abstract in **The Canadian Journal of Gastroenterology**, 15 (Supplement A): 57A, 2001
- Poster at the 2001 Canadian Digestive Disease Week, Banff, Alberta, Canada

“Aquaporins in rabbit jejunal epithelium.” L.E. Wallace, G.A. Millar, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 118; A5254, 2000
- Poster at the 2000 Digestive Disease Week, San Diego, CA

“Expression and localization of the EGF receptor family proteins in jejunal tissue.” L.E. Wallace, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 118: A556, 2000
- Poster at the 2000 Digestive Disease Week, San Diego, CA

“Brush border sugar transporter expression is altered following massive small bowel resection.” **B.M. Chung**, L.E. Wallace, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 118: A64, 2000
- Poster at the 2000 Digestive Disease Week, San Diego, CA

“Brush border SGLT-1 protein expression along the crypt-villus axis is altered following adaptation to massive small bowel resection.” L.E. Wallace, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Canadian Journal of Gastroenterology**, 13: A196, 1999
- Poster at Gastro 2000, Vancouver B.C. Canada

“Epidermal Growth Factor increases rabbit jejunal glucose transport by recruiting an intracellular pool of SGLT-1 into the brush border.” **B.M. Chung**, L.E. Wallace, J.A. Hardin, D.G. Gall.

- Abstract in **Canadian Journal of Gastroenterology**, 13: A205, 1999
- Oral presentation at Gastro 2000, Vancouver, B.C., Canada

“Altered brush border SGLT-1 content and expression along the crypt-villus axis following massive small bowel resection.” L.E. Wallace, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 116: A943, 1999
- Poster at the 1999 Digestive Disease Week, Orlando, FL

“Epidermal Growth Factor stimulates the translocation of membrane-bound SGLT-1 into the apical brush border.” **B.M. Chung**, L.E. Wallace, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 116: A544, 1999
- Oral presentation at the 1999 Digestive Disease Week, Orlando FL

“Polyamines regulate SGLT-1 expression.” K.I. Kroeker, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 114: A810, 1998
- Oral presentation at the 1998 Digestive Disease Week, New Orleans, LA

“EGF acutely upregulates glucose transport in the jejunum by increasing insertion of SGLT-1 into the brush border.” **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 114: A871, 1998
- Oral presentation at the 1998 Digestive Disease Week, New Orleans, LA

“Glucose transport and SGLT-1 expression in a model of spontaneous type-1 diabetes.” L. Donegan, **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Gastroenterology**, 114: A264, 1998
- Poster at the 1998 Digestive Disease Week, New Orleans LA

“EGF acutely upregulates intestinal glucose transport in the New Zealand White rabbit by translocation of SGLT-1 into the brush border.” **B.M. Chung**, J.A. Hardin, D.G. Gall.

- Abstract in **Canadian Journal of Gastroenterology** 12: 127A, 1998
- Poster at the 1998 Canadian Digestive Disease Week, Banff, Alberta

“The effects of EGF on structure and functional adaptations in the resected rabbit.” **B.M. Chung**, J.A. Hardin, E.V. O’Loughlin, D.G. Gall.

- Abstract in **Gastroenterology** 112: A354, 1997
- Poster at the 1997 Digestive Disease Week, Washington D.C.

“Morphological and functional adaptation in the resected small bowel.” **B.M. Chung**, J.A. Hardin, E.V. O’Loughlin, D.G.Gall.

- Abstract in **Gastroenterology** 110: A318, 1996
- Poster at the 1996 Digestive Disease Week, San Francisco CA

“The effect of EGF on glucose transport in resected rabbits.” P.M. Bomersback, J.A. Hardin, E.B. O’Loughlin, **B.M. Chung**, D.G. Gall.

- Abstract in **Gastroenterology** 105: A598, 1994
- Poster at the 1994 Digestive Disease Week, San Diego CA

“Morphological and functional alterations in resected small bowel.” J.A. Hardin, E.V. O’Loughlin, **B. Chung**, D.G. Gall.

- Abstract in **Gastroenterology** 104: A1041, 1993,
- Poster at the 1993 Digestive Disease Week, Washington DC

Extracurriculars

Fly fishing, bait/spinner fishing, hiking, snowboarding, cooking & baking, sewing, general vehicle repair, general home repair & renovations

Competitive pistol shooting

- Chief Range Officer, United States Practical Shooting Association (USPSA) Range Officer Institute
- USPSA Limited B classification

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