

Curriculum vitae

Christopher K. Yost, B.Sc., Ph.D.

CONTACT INFORMATION:

Department of Biology
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EDUCATION:

09/1993-01/1998 Ph.D. Microbial Genetics. Department of Biology, University of Calgary.

Thesis Title: Characterization of *Rhizobium leguminosarum* Genes Homologous to Chemotaxis Chemoreceptors.

09/1988-12/1992 B.Sc. Microbiology (CO-OP distinction). Department of Microbiology/
Biochemistry, University of Victoria.

ACADEMIC AWARDS:

1998 Finalist, Graduate Student of the Year, Canadian Society of Microbiology.

1997 Honorable Mention, Graduate Teaching Assistant of the Year, University of Calgary.

1995 Jake Duerksen Memorial Scholarship.

PROFESSIONAL MEMBERSHIPS:

American Society for Microbiology
Canadian Society for Microbiology

PROFESSIONAL EXPERIENCE:

- 7/2014-present **Professor**, Department of Biology, University of Regina
- THEMES: Bacterial genetics of *Rhizobium leguminosarum*
Microbial threats to food safety
- KEYWORDS: Gene regulation, molecular microbiology, plant-microbe interactions, microbial source tracking, *Bacteroidales*, fecal pollution, food safety of fresh produce.
- 9/2007-present **Canada Research Chair Tier II**, “Microbes, the Environment and Food Safety” Department of Biology, University of Regina.
- THEMES: Irrigation water quality, microbial source tracking and safety of fresh produce
Environmental Dimension of Antibiotic Resistance
- KEYWORDS: Food Safety& Water Quality, Molecular Detection of Microbes, Microbial Genotyping, Microbial Genetics, Molecular Microbial Ecology.
- 7/2008-6/2014 **Associate Professor**, Department of Biology, University of Regina
- 8/2003-6/2008 **Assistant Professor**, Department of Biology, University of Regina
- 10/2002-7/2003 **Post-Doctoral Research Associate**, Department of Biological Sciences, University of Calgary.
- Genetic characterization of signal transduction pathways in *Rhizobium leguminosarum*.
- 10/2001-6/2002 **“Adjunkt Professor”**, Department of Molecular and Structural Biology, University of Århus, Denmark.
- Molecular characterization of nodule development in the model legume *Lotus japonicus*.
- 06/2000-09/2001 **Research Scientist**, Agriculture and Agri-Food Canada. Lacombe Research Centre
- Applied molecular microbiology in food safety and food preservation.
- 11/1998-05/2000 **NSERC Visiting Scientist** In Government Laboratories, Agriculture and Agri-Food Canada. Lacombe Research Centre.
- Applied molecular microbiology in food safety and food preservation.

FUNDED RESEARCH COLLABORATIONS:

Ongoing collaborations:

Partners	Topic	Funding Source
L. Braul (Agriculture and Agri-Food Canada)	Protecting Fresh Produce from Microbial Threats	Saskatchewan Agriculture Development Fund
D. McMartin (University of Regina, Engineering)	Evaluating best management practices for the prairie pothole region at Pipestone Creek, SK	Agriculture and Agri-Food Canada, WEBS II
R. Jamieson (Dalhousie University, Engineering)	Indicators of fecal pollution in agricultural ecosystems	NSERC Strategic Projects Grant
M.F. Hynes (University of Calgary, Biology)	Increasing the effectiveness of rhizobial inoculants by using immobilized phage to enhance nodulation competitiveness	Saskatchewan Agriculture Development Fund
W. Gaze (University of Exeter and European Centre for Environment and Human Health, Medical School, UK)	Do soil-associated antibiotics select for antibiotic resistance, affect soil microbial structure and pose a risk to crop productivity	Funding Pending- Biotechnology and Biological Science Research Council, UK
B. Yan (Xiamen University of Technology, Environmental Engineering, China) & G. Huang (University of Regina, Engineering)	Membrane technology in wastewater treatment and reduction of antibiotic resistant bacteria in waste effluent.	Funding Pending- Institute for Energy, Environment and Sustainable Communities

Completed collaborations:

Partners	Topic	Funding Source
C. Brock (Alberta Environment)	Fecal source tracking on the North Battleford River and Wabamun Lake	Alberta Environment
S. Depoe (Alberta Agriculture and Rural Development)	Fecal source tracking in Southern Alberta agricultural watersheds	Alberta Agriculture and Rural Development
A. Cessna (Environment Canada)	Protection irrigation water from microbial threats	Saskatchewan Ministry of Agriculture

Partners	Topic	Funding Source
K. Liljebjelke (University of Calgary, Veterinary Medicine, Ecosystem and Public Health)	Investigating fecal impacts and bacterial pathogens in dog run parks	Internal funds from U of Calgary and U of Regina
M. Gourmelon (IFREMER, Microbiology Laboratory, Brest, France)	Workshop on microbial source tracking tools for food and water safety	Internal funds from U of Regina
R. Carlson (University of Georgia, Complex Carbohydrate Research Center, Georgia, USA)	LPS Structure and capsule structures of <i>Rhizobium leguminosarum</i>	NSERC Discovery Grant

RESEARCH GRANTS AND RESEARCH CONTRACTS:

Date	Title	Agency	Co-applicants	Total Amount (shared grant)
2015-2018	Measuring and mitigating the release of mobile antibiotic resistance genes from wastewater treatment plants in Canada	NSERC Strategic Projects	R. Jamieson L. Truelstrup Hansen A.Z. Tong	\$584,975 (55%)
2011-2016	Investigating cell envelope structure and function in the plant symbiont <i>Rhizobium leguminosarum</i>	NSERC-Discovery Grant renewal	none	\$180,000
2012-2017	Microbes, The Environment and Food Safety	Canada Research Chairs (NSERC)-Renewal	none	\$500,000
2012-2014	Protecting Fresh Produce from Microbial Threats	Saskatchewan Agriculture Development Fund	L. Brault	\$135,000 (100%)
2009-2013	Indicators of fecal pollution in agricultural ecosystems	NSERC Strategic Projects	R. Jamieson	\$439,650 (42%)
2007-2012	Microbes, The Environment and Food Safety	Canada Research Chairs (NSERC)	none	\$500,000
2009-2011	Increasing the effectiveness of rhizobial inoculants by using immobilized phage to enhance nodulation competitiveness	Saskatchewan Agriculture Development Fund	M. Hynes	\$142,000 (58%)
2006-2011	Bacteroid development in rhizobia	NSERC-Discovery Grant, renewal	none	\$193,500

Date	Title	Agency	Co-applicants	Total Amount (shared grant)
2010	Planetary pollution with organic nitrogen and other biomolecules: the emerging threat to sustainable water quality	Canadian Foundation for Innovation, Leading Edge Fund	Led by P. Leavitt with 7 other co-applicants	\$2,799,999 (matched by Saskatchewan Government for total of \$5,599,998)
2008-2010	Maintaining food safety by protecting irrigation water from fecal contamination	Saskatchewan Agriculture Development Fund	none	\$129,150
2009	Bacteroidales based fecal source tracking in Meadow Creek watershed	Alberta Agriculture (contract)	none	\$13,000
2008	Bacteroidales based fecal source tracking in Wabamun Lake	Alberta Environment (Contract)	none	\$12,500
2007	Centre for irrigation water protection and microbial ecology of foods	Canadian Foundation for Innovation, Leaders Opportunity Fund	none	\$137,044 (matched by Saskatchewan Government for total of \$274,088)
2006	Microtitre plate UV/VIS spectrometer for molecular biology	NSERC-Research Tools and Instruments	S. Lund	\$20,481 (50%)
2004-2006	Role of proteases in bacteroid development	NSERC-Discovery Grant	none	\$50,000
2004	Tools for molecular microbiology	Canadian Foundation for Innovation New Opportunities Fund	none	\$51,189 (matched by Saskatchewan Government for total of \$127,972)

GRADUATE STUDENT TRAINING:

Name	Program	Year	Status	Supervisor	Co-Supervisor
Mir Akter	PhD	2016	accepted into program	Yost	
Claire Freeman	MSc	2015	in progress	Yost	
Adeyinka Ajayi	PhD	2015	in progress	Yost	
Kara Neudorf	PhD	2011-2015	completed	Yost	-
Benjamin Perry	MSc	2013-2015	completed	Yost	

Name	Program	Year	Status	Supervisor	Co-Supervisor
Anupaman Halmillawewa ^a	PhD	2010-2014	completed	Hynes	Yost
Shirin Afroj	MSc	2011-2014	completed	Yost	Jamieson
Greg Piorkowski ^c	PhD	2009-2013	completed	Jamieson	Yost
Teddie Rahube	PhD	2008-2013	completed	Yost	-
Ryan McDonald ^b	PhD	2006-2013	completed	Levett	Yost
Braden Fritterer ^b	PhD	2010-2013	completed	Antonishyn	Yost
Elizabeth Vanderlinde	PhD	2006-2012	completed	Yost	-
Bijaya Aryal	MSc	2010-2012	completed	Yost	-
Dallas Foreman	MSc	2006-2008	completed	Yost	-
Christina Tsui	MSc	2005-2007	completed	Yost	-
Carla Sampson	MSc	2004-2007	completed	Kelln	Yost
Kerrigan Gilbert	MSc	2004-2006	completed	Yost	-

^a University of Calgary Department of Biological Sciences, ^b Saskatchewan Disease Control Laboratory, ^c Dalhousie University Department of Process Engineering and Applied Science

COMMITTEE SERVICE WORK TO ACADEMIA

Duty	Description	Date
University of Regina Committee Service		
Hiring Committees	I have been involved in 5 faculty hiring committees, for 2 of these I was the chair of the search committee. 4 searches were within in the Biology Department and in 1 case I was the external representative for a hire in Computer Science	ongoing
Chair PhD Defenses	Provides a service to the Faculty of Graduate Studies and Research in overseeing the appropriate procedures are followed during a PhD defense. To date I have chaired 3 PhD defenses.	ongoing
Biology Time Table	I am responsible for coordinating and scheduling the Biology course timetable for each semester and submitting these to the registrars office for room assignments	2005-ongoing

Duty	Description	Date
Biology Honours Coordinator	I oversee the Honours student program which involves advertisement of the program and I actively participate on each Honours student's committee which involves a proposal meeting and thesis defense. The program has 4-10 students each year	2005-ongoing
Executive of Council	As a member of Executive of Council involved in monthly meetings to discuss matters pertaining to the governance of the university.	2005-2008; 2013-2016
Advisory Group on Planning, Evaluation and Allocation	Committee under the auspices of the Office of the President. Membership involved bi-weekly meetings to review and discuss planning and budgeting priorities for the University.	2013
Faculty of Graduate Studies and Research Scholarship Committee	I was chair of this committee which met twice per year to adjudicate graduate scholarship applications.	2006-2008
Biohazard Safety Committee	Membership involved drafting of safety policies for the Faculty of Science relating to biohazards.	2004-2005
External Committee Service		
NSERC Discovery Grant	Member of the NSERC Discovery Grants 1501 review panel. Co-Chair (Microbiology/Immunology) in 2013. Review of grant applications in the microbiology and immunology stream of Genes, Cells and Molecules. Annual 5 day meeting in Ottawa	2011-2014
NSERC PromoScience	Member of the Promo Science grants selection committee and Chair in 2010. Involved review of grant applications competing for funds for science promotion and outreach activities. Annual 2 day meeting held in Ottawa.	2008-2010
Canadian Society for Microbiologists	Co-Chair and Chair of the Applied and Environmental Microbiology section of the CSM. Assist in reviewing abstracts for annual conference and organized a Genomics workshop (funded by Genome Ontario) with Dr. Josh Neufeld (Waterloo) at McMaster University for CSM 2010 conference.	2008-2012
External Examiner PhD Defense	I was the External Examiner for Brad Pickering's thesis defense. Supervisor: Ivan Oresnik, Microbiology Department, University of Manitoba	2009
External Examiner PhD Defense	I was the External Examiner for Adi Rolider's thesis defense. Supervisors: Bernie Glick and Trevor Charles, Biology Department, University of Waterloo	2009

PROFESSIONAL VOLUNTEER WORK TO COMMUNITY:

Duty	Description	Date
Lab Demonstrator	I provide a hands-on DNA extraction experiment for Science Rendezvous- an annual public outreach event in May, where the public are invited to the University of Regina to participate in a science showcase	2012-ongoing
Science Commentary	I provide scientific commentary, when requested, to CBC television (Regina-local), Global TV (Regina), CBC Radio One (Regina local and syndicated), and CHQR (Calgary) on issues related to food safety and microbiology.	2006- ongoing
Lab Demonstrator	Annually, I assist the Regina Eastview Rotarian Club with their program “Adventures in Agriculture” which occurs in November. I provide a hands-on DNA extraction and biotechnology seminar to 24 high school students with interests in agriculture.	2004- ongoing
Environmental Advisory Committee, City of Regina	I am a member of the EAC group which meets monthly to advise Regina City Counsellors on environmental issues, including water quality concerns and waste reduction	2012-2014
Central Alberta Science Network Founder	I raised \$90,000 in grants to create the CASN and subsequently aid the CASN in implementing programs that promoted science culture and literacy in Central Alberta schools	2000-2003
Alberta Science Literacy Association President	I helped to secure \$350,000/year from the provincial government in support of 5 science hotlines that were distributed geographically throughout Alberta and were responsible for promoting science literacy to schools.	2002
Fight Bac member	I was a member of the educational subcommittee for Canada Fight Bac and worked with a team to develop a teacher’s kit for educating grades 4-6 on food safety and bacterial hazards.	2001

PEER REVIEWED JOURNAL PUBLICATIONS:

52. O'Connor B, Perry BJ, **Yost CK.** (2015). Draft genome sequence of *Rheineimera* sp. KL1 isolated from a freshwater lake in southern Saskatchewan, Canada. *Genome Announcements*. 3(5): e01177-15.

51. Bhat S, Booth S, Vantomme E, Afroj S, **Yost C**, Dahms, T. (2015). Oxidative stress and metabolic perturbations in *Escherichia coli* exposed to sublethal levels of 2,4-dichlorophenoxyacetic acid. *Chemosphere*. 135: 453-461.

50. Stea EC, Truelstrup Hansen L, Jamieson RC, **Yost CK.** (2015) Fecal contamination in the surface waters of a rural- and an urban-source watershed. *J Environ. Qual.* 44: 1556-1567.

49. Halmillawewa AP, Restrepo-Cordoba M*, Perry BJ*, **Yost C.K.**, Hynes MF. (2015). Characterization of the temperate phage vB_RleM_PPF1 and its site specific integration into the *Rhizobium leguminosarum* phage F1 genome. Mol. Genet. Genomics. [e pub ahead of print]
48. Tambalo, DD, Perry, BJ, Fitzgerald, S, Cameron, ADS, **Yost, C.K.** (2015). Draft Genome Sequence and Annotation of Phyllosphere-Persisting *Salmonella enterica* Serovar Livingstone Strain CKY-S4, isolated from an Urban Lake in Regina, Canada. Genome Announcements. 3(4): e00884-15.
47. Stea EC, Purdue LM, Jamieson RC, **Yost CK**, Truelstrup Hansen L. (2015). Comparison of the prevalences and diversities of *Listeria* species and *Listeria monocytogenes* in an urban and a rural agricultural watershed. Appl. Environ. Microbiol. 81: 3812-3822.
46. Halmillawewa A*, Restrepo-Córdoba M, **Yost CK**, Hynes MF. (2015). Genomic and phenotypic characterization of *Rhizobium gallicum* phage vB_RglS_P106B. Microbiol. 161: 611-620.
45. Neudorf, K.D., Vanderlinde, E.M., Tambalo, D.D., **Yost, C.K.** (2015). A previously uncharacterized tetratricopeptide repeat containing protein is involved in cell envelope function in *Rhizobium leguminosarum*. Microbiol. 161: 148-157
44. Perry, B.J., **Yost, C.K.** (2014). Construction of a mariner-based transposon vector for use in insertion sequence mutagenesis in selected members of the Rhizobiaceae. BMC Microbiol. 14:298
43. Rahube, T.O., Viana, L.S., Koraimann, G., **Yost, C.K.** (2014). Characterization and comparative analysis of antibiotic resistance plasmids isolated from a wastewater treatment plant. Front. Microbiol. 5: 558
42. Piorkowski, G.S., Jamieson, R.C., Bezanson, G.S., Hansen, L.T., **Yost, C.** (2014). Reach specificity in sediment *E. coli* population turnover and interaction with waterborne populations. Sci Tot Environ 496: 402-413
41. Ridley, C.M., Jamieson, R.C., Hansen, L.T., **Yost, C.K.**, Bezanson, G.S. (2014). Baseline and storm event monitoring of *Bacteroidales* marker concentrations and enteric pathogen presence in a rural Canadian watershed. Water Res. 60: 278-288.
40. Piorkowski, G.S., Jamieson, R.C., Bezanson, G.S., Hansen, L.T., **Yost, C. K.** (2014). Effect of hillslope position and manure application rates on the persistence of fecal source tracking indicators in an agricultural soil. J Environ Qual. 43: 450-458
39. Tambalo, D.D., Vanderlinde, E.M., Robinson, S., Halmillawewa, A., Hynes, M.F., **Yost, C.K.** (2013). Legume seed exudates and *Physcomitrella patens* extracts influence swarming behavior in *Rhizobium leguminosarum*. Can. J. Microbiol. [Epub ahead of print]
38. Piorkowski, G.S., Jamieson, R.C., Bezanson, G.S., Hansen, L.T., **Yost, C.K.** (2013). Characterizing spatial structure of sediment *E. coli* populations to inform sampling design. Environ. Monit. Assess. [Epub ahead of print]

37. Vanderlinde E.M., Hynes, M.F., **Yost, C.K.** (2013). Homoserine catabolism by *Rhizobium leguminosarum* bv. *viciae* 3841 requires a plasmid-borne gene cluster that also affects competitiveness for nodulation. Environ. Microbiol. [Epub ahead of print]
36. Piorkowski, G., Jamieson, R., Bezanson, G., Hansen, L.T., **Yost, C.** (2013). Evaluation of statistical models for predicting *Escherichia coli* particle attachment in fluvial systems. Water Res. 47: 6701-6711.
35. Nelson K.Y., McMartin, D.W., **Yost, C.K.**, Runtz, K.J., Ono, T. (2013). Point-of-use water disinfection using UV light-emitting diodes to reduce bacterial contamination. Environ. Sci. Pollut. Res. Int. 20: 5441-5448
34. Boa, T., Rahube, T.O., Fremaux, B., Levett, P.N., **Yost, C.K.** (2013). Prevalence of methicillin resistant staphylococci species isolated from computer keyboards located in secondary and postsecondary schools. J. Environ. Health 75: 50-58.
33. Tambalo, D.D., Boa, T., Liljebjelke K., **Yost, C.K.** (2012) Evaluation of two quantitative PCR assays using *Bacteroidales* and mitochondrial DNA markers for tracking dog fecal contamination in waterbodies. J. Microbiol. Methods 91: 459-467.
32. Tetlock A, **Yost, C.K.**, Stavriniades J, Manzoni, R.G. (2012). Changes in the gut microbiome of the sea lamprey during metamorphosis. Appl. Environ. Microbiol. 78: 7638-7644.
31. Vanderlinde E.M., **Yost, C.K.** (2012). Genetic analysis reveals links between lipid A structure and expression of the outer membrane protein gene, *ropB*, in *Rhizobium leguminosarum*. FEMS Microbiol Lett. 335: 130-139.
30. Rahube, T.O., **Yost, C.K.** (2012). Characterization of a mobile and multiple resistance plasmid isolated from swine manure and its detection in soil after manure application. J. Appl. Microbiol. 112: 1123-1133.
29. Marti, R., Fremaux, B., Edge, T.A., Topp, E., **Yost, C.K.** (2012). Les méthodes de typages des sources microbiennes au Canada. TSM: Techniques Science Méthodes 3: 65-79
28. Tambalo, D.D., Fremaux, B., Boa, T., **Yost, C.K.** (2012). Persistence of host-associated *Bacteroidales* gene markers and their quantitative detection in an urban and agricultural mixed prairie watershed. Water Res. 46: 2891-2904.
27. Vanderlinde, E.M., **Yost, C.K.** (2012). Mutation of the sensor kinase *chvG* in *Rhizobium leguminosarum* negatively impacts cellular metabolism, outer membrane stability and symbiosis. J. Bacteriol. 194: 768-777.
26. Dong, J., Signo, K.S.L., Vanderlinde, E.M., **Yost, C.K.**, Dahms, T.E.S. (2011). Atomic force microscopy of a *ctpA* mutant in *Rhizobium leguminosarum* reveals surface defects linking CtpA function to biofilm formation. Microbiol 157: 3049-3058.
25. Vanderlinde, E.M., Magnus, S.A., Tambalo, D.D., Koval, S.F., **Yost, C.K.** (2011). Mutation of a broadly conserved operon from *Rhizobium leguminosarum* biovar *viciae* (RL3499-RL3502) causes defects to cell morphology and envelope integrity. J. Bacteriol. 193: 2684-2694.

24. Rahube, T.O., **Yost, C. K.** (2010). Antibiotic resistance plasmids in wastewater treatment plants and their possible dissemination into the environment. *African J. Biotech.* 9: 9183-9190.
23. Fremaux, B., Boa, T., **Yost, C.K.** (2010). Quantitative real-time PCR assays for sensitive detection of Canada goose-specific fecal pollution in water sources. *Appl. Environ. Microbiol.* 76: 4886-4889.
22. Tambalo, D.D., **Yost, C.K.**, Hynes, M.F. (2010). Characterization of swarming motility in *Rhizobium leguminosarum* bv. *viciae*. *FEMS Microbiol Lett.* 307: 165-174.
21. Foreman D.L., Vanderlinde E.M., Bay D.C., **Yost C.K.** (2010). Characterization of a gene family of outer membrane proteins (ropB) in *Rhizobium leguminosarum* biovar *viciae* VF39SM and the role of the sensor kinase ChvG in their regulation. *J. Bacteriol.* 192: 975-983.
20. Vanderlinde, E.M., Harrison, J.J., Muszynski, A., Carlson, R.W., Turner, R., **Yost, C.K.** (2010). Identification of a novel ABC transporter required for desiccation tolerance, and biofilm formation in *Rhizobium leguminosarum* biovar *viciae* 3841. *FEMS Microbiol Ecol.* 71: 327-340.
19. Fremaux, B., Gritzfeld, J., Boa, T., **Yost, C.K.** (2009). Evaluation of host-specific *Bacteroidales* 16S rRNA gene markers as a complementary tool for detecting fecal pollution in a prairie watershed. *Water Res* 43: 4838-4849.
18. Vanderlinde, E.M., Muszynski, A., Harrison, J.J., Koval, S.F., Foreman, D.L., Ceri, H., Kannenberg, E.L., Carlson, R.W., **Yost, C.K.** (2009). A *Rhizobium leguminosarum* biovar *viciae* 3841 mutant, deficient in 27-hydroxyoctacosanoate-modified lipopolysaccharide is impaired in desiccation tolerance, biofilm formation and motility. *Microbiol.* 155: 3055-3069.
17. Fremaux, B., Boa, T.B., Chaykowski, A.C., Kasichayanula, S.K., Gritzfeld, J.G., Bräul, L.B., **Yost, C.** (2009). Assessment of the microbial quality of irrigation water in a prairie watershed. *J. Appl. Microbiol.* 106: 442-454
16. Gilbert, K., Vanderlinde, E., **Yost, C.K.** (2007). Mutagenesis of the carboxy terminal protease CtpA decreases desiccation tolerance in *Rhizobium leguminosarum*. *FEMS Microbiol. Lett.* 272: 65-74
15. Miller, L. D., **Yost, C. K.**, Hynes, M. F., and Alexandre, G. (2007). The major chemotaxis gene cluster of *Rhizobium leguminosarum* bv. *viciae* is essential for competitive nodulation. *Mol. Microbiol.* 63: 348-362
14. **Yost, C. K.**, Rath, A. M., Noel, T. C., and Hynes, M. F. (2006). Characterization of genes involved in erythritol catabolism in *Rhizobium leguminosarum* bv. *viciae*. *Microbiol.* 152: 2061-2074.
13. Madsen, L., Fukai, E., Radutoiu, S., **Yost, C. K.**, Sandal, N., Schauser, L., and Stougaard, J. (2005). An active low copy number TY3 retrotransposon targets gene rich regions in the *Lotus japonicus* genome. *Plant J.* 44: 372-381.

12. **Yost C. K.**, Del Bel K. L., Quandt J., and Hynes M. F. (2004) *Rhizobium leguminosarum* methyl-accepting chemotaxis protein genes are down-regulated in the pea nodule. Arch Microbiol. 182: 505-513
11. Aslam, M., Nattress, F. M., Greer, G. G., **Yost, C. K.**, Gill, C. O., and McMullen, L. M. (2003) Origin of beef contamination and genetic diversity of *Escherichia coli* in beef cattle. Appl. Environ. Microbiol. 69: 2794-2799
10. **Yost, C. K.**, Clark, K. T., Del Bel, K. L., and Hynes, M. F. (2003) Characterization of the nodulation plasmid encoded chemoreceptor gene *mcpG* from *Rhizobium leguminosarum*. BMC Microbiol. 3: 1
9. García de los Santos, A., Morales, A., Baldomá, L., Clark, S.R.D., Brom, S., **Yost, C.K.**, Hernández-Lucas, I., Aguilar, J., and Hynes, M.F. (2002) The *glcB* locus of *Rhizobium leguminosarum* VF39 encodes an arabinose inducible malate synthase. Can. J. Microbiol. 48: 922-932
8. Holley, R. A., Guan, T. Y., Peirson, M. and **Yost, C. K.** (2002) *Carnobacterium viridans* sp. nov., an alkaliphilic, facultative anaerobe is isolated from refrigerated, vacuum packed bologna. Int. J. Syst. Evol. Microbiol. 52: 1881-1885
7. **Yost, C. K.**, and Nattress, F. M. (2002) Use of molecular typing techniques to characterize the development of a lactic acid bacteria community on vacuum-packaged beef. Int. J. Food Microbiol. 72: 97-105
6. Nattress, F. M., **Yost C. K.**, and Baker, L. P. (2001) Evaluation of the ability of lysozyme and nisin to control meat spoilage bacteria: Inoculation studies in broth and on sterile pork. Int. J. Food Microbiol. 70: 111-119
5. **Yost, C. K.**, and Nattress, F. M. (2000). The use of multiplex PCR reactions to characterize populations of lactic acid bacteria associated with meat spoilage. Lett. Appl. Microbiol. 31: 129-133.
4. Oresnik I.J., Liu S-L. **Yost C.K.**, and Hynes M.F. (2000). Megaplasmid pRme2011a of *Sinorhizobium meliloti* is not required for viability. J. Bacteriol. 182: 3582-3586.
3. Oresnik, I. J., Pacarynuk, L. A., O'Brien, S. A. P., **Yost, C. K.**, and Hynes, M. F. (1998). Plasmid-encoded catabolic loci in *Rhizobium leguminosarum* bv.*trifolii*. Evidence for a plant-inducible rhamnose utilisation locus involved in competition for nodulation. Mol. Plant. Microbe Interact. 11: 1175-1185.
2. **Yost, C. K.**, Rochepeau, P. and Hynes, M. F. (1998). *Rhizobium leguminosarum* contains a group of genes that appear to code for methyl accepting chemotaxis proteins. Microbiol 144: 1945-1956.
1. Noel, T. C., Sheng, C., **Yost, C. K.**, Pharis, R. P. and. Hynes, M. F. (1996). *Rhizobium leguminosarum* as a plant growth-promoting rhizobacterium: direct growth promotion of canola and lettuce. Can. J. Microbiol. 42: 279-283.

PEER REVIEWED BOOK CHAPTERS:

Yost, C. K. (2013) Biopreservation. In C.E. Devine and M. Dikeman (eds) *The Encyclopedia of Meat Sciences, 2nd Edition*. Elsevier, in press.

Yost, C.K., Diarra, M.S., and Topp, E. (2010) Animal Sources of Fecal Indicator Bacteria. In M. Sadowsky and R. Whitman (eds) *The Fecal Indicator Bacteria*. ASM Press, Washington, DC.

Yost, C. K., and Nattress, F. M. (2004) Microbial Analysis: DNA Techniques. In W. K. Jensen, C. Devine and M. Dikeman (eds) *Encyclopedia of Meat Science*. Elsevier Academic Press, London, UK.

Yost, C.K., and Hynes, M.F. (2000) Rhizobial motility and chemotaxis: molecular biology and ecological role. In E. W. Triplett (ed) *Prokaryotic Nitrogen Fixation: A Model System for the Analysis of a Biological Process*. pp. 237-250. Horizon Scientific Press, Wymondham, UK.

INVITED ARTICLES FROM CONFERENCE PROCEEDINGS:

Dong, J., Vanderlinde, E.M., **Yost, C. K.**, and Dahms, T.E. (2011) An atomic force microscopy study of live cells and biofilms of *Rhizobium leguminosarum*. Biophysical Journal. 100(3s): 162

Hynes, M. F., **Yost, C. K.**, Oresnik, I. J., Garcia de los Santos, A., Clark, S. R. D., and Macintosh, J. E. (2002) Catabolic and chemoreceptor genes and their role in rhizobial ecology. In T. Finan, M. O'Brian, D. Layzell, K. Vessey, W. Newton (eds) *Nitrogen Fixation : Global Perspectives*. pp 155-157. CABI Publishing, Oxon UK.

Garcia-de los Santos, A., Morales, A., Hernandez-Lucas, I., **Yost, C. K.**, Brom, S., and Hynes, M. F. (2002) Glyoxylate cycle in *R. leguminosarum*: Characterization of a mutant carrying a Tn5B22 insertion disrupting the malate synthase-encoding gene. In T. Finan, M. O'Brian, D. Layzell, K. Vessey, W. Newton (eds) *Nitrogen Fixation : Global Perspectives*. p 425. CABI Publishing, Oxon UK.

Hynes M. F., Oresnik, I. J., **Yost, C. K.**, and Noel, T .C. (1999) Analysis of factors affecting competition for nodulation of legumes by *Rhizobium leguminosarum*. In Martinez and Hernandez (eds) *Highlights in Nitrogen Fixation Research*. pp. 65-68. Plenum, Kluwer Academic/Plenum Publishers, New York, U.S.A.

Hynes, M.F., Mitsch, M.J., Faas, L.A., and **Yost, C.K.** (1995) What is still to be learned about the *Rhizobium* genome and *Rhizobium* genes involved in symbiosis? In I. Tikhonovich and W.E. Newton (eds) *New Horizons in Nitrogen Fixation* . pp. 351-352. Kluwer Academic Publishers, Dordrecht, NL.

TECHNICAL REPORTS:

Yost, C.K. (2011) Maintaining food safety by protecting irrigation water from fecal contamination. Submitted to Saskatchewan Ministry of Agriculture and Food.

Yost, C.K. (2010) Microbial source tracking study in southern Alberta's agricultural watersheds. Submitted to Alberta Agriculture.

Yost, C.K., Fremaux, B. (2009) The use of quantitative Bacteroidales-based bacterial source tracking to evaluate fecal contamination in agriculturally influenced Southern Alberta Watersheds: Report submitted to Alberta Agriculture, Research Branch.

Yost, C.K., Braul, L. (2007) Managing pathogen levels in irrigation water supply reservoirs through natural and mechanical inactivation and aeration. Report submitted to Agriculture and Agri-Food Canada.

SELECTED CONFERENCE PRESENTATIONS:

Invited Talks (2007-2014):

Yost, C.K.* Measuring and mitigating the risk of emission of antibiotic resistance genes from wastewater treatment plants. Canadian Water and Wastewater Association Window on Ottawa, Ottawa, Ontario, November, 2014

Yost, C.K*., Tambalo, D.D., Boa, T. Food Safety of Fresh Produce and Water Quality. Saskatchewan Vegetable Growers Annual Conference. Saskatoon, Saskatchewan. November 8-9, 2013.

Rahube T.* and **Yost, C. K.** Analysis of antibiotic resistance plasmids isolated from Regina WWTP and detection of resistance determinants in the environment. Environmental Dimension of Antibiotic Resistance Satellite Symposium, 63rd Annual Meeting for Canadian Society of Microbiologists. Carleton University, Ottawa, June 17-20, 2013.

Yost, C.K*., Fremaux, B., Boa, T. Water Quality Management in a Western Canadian Watershed. United Nations Development Program Workshop on Environment, Water and Energy. Xiamen University of Technology, Xiamen, China, September 17-18, 2012

Yost, C.K*., Fremaux, B., Boa T. Indicators of Fecal Pollution in Agricultural Ecosystems. Tri-Provincial Manure Management Conference. Saskatoon, Saskatchewan. February, 2012.

Yost, C.K*., Fremaux, B.,Boa T. Development and implementation of MST markers to identify the origin of faecal pollutions in Canada. International Conference on Sanitary Water Quality in Bathing and Shellfish Areas. Ifremer Centre de Brest, Brest, France. October 29, 2010

Yost, C.K*., Fremaux, B.,Boa T. Protecting irrigation water from microbial threats. Saskatchewan Vegetable Growers Annual Conference. Saskatoon, Saskatchewan. November 12-14, 2009.

Yost, C.K*., Fremaux, B., Gritzfeld, J. Ensuring food safety by improving the microbial quality of irrigation water: a study of the Qu'Appelle River in Southern Saskatchewan. 6th International Symposium on Public Health and the Agricultural Rural Ecosystem. Saskatoon, SK. October 19-23, 2008.

Yost, C.K*., Fremaux, B., Gritzfeld, J. Protecting the safety of fresh produce by improving the microbial quality of irrigation water: A study of the Qu'Appelle River in Southern Saskatchewan. 58th

Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Yost, C.K.*. Managing the risk of microbial pathogens in irrigation water. Soils and Crops Workshop, University of Saskatchewan, Saskatoon, SK. February 28-29, 2008.

Yost, C.K*., Boa, T., Gritzfeld, J. Using microbial source tracking to protect irrigation water in the Qu'Appelle watershed. Saskatchewan Vegetable Growers Association Annual Meeting. Saskatoon, SK. November 9-11, 2007.

Nelson, K*., **Yost, C.K.**, Runtz, K., McMartin, D. Point-of-Use Water Disinfection using UV light emitting diodes to eliminate bacterial contamination. Canadian Water Resources Association 60th Annual National Conference. Saskatoon, SK. June 25-28, 2007.

Poster Presentations (2007-2013):

Tambalo, D.D., Vanderlinde, E.M., Robinson, R., Halmillawewa, A., Hynes, M.F., **Yost, C.K.** Legume and non-legume extracts influence swarming behavior in *Rhizobium leguminosarum*. 22nd North American Symbiotic Nitrogen Fixation Conference. University of Minnesota, Minneapolis. July 14-17, 2013.

Neudorf, K., Vanderlinde, E.M., **Yost, C.K.** Using a suppressor mutation strategy to study cell envelope interactions within *Rhizobium leguminosarum*. 22nd North American Symbiotic Nitrogen Fixation Conference. University of Minnesota, Minneapolis. July 14-17, 2013.

Perry, B., **Yost, C.K.** An initial characterization of competition associated phenotypes in two indigenous strains of *Rhizobium leguminosarum* bv. *viciae*. 22nd North American Symbiotic Nitrogen Fixation Conference. University of Minnesota, Minneapolis. July 14-17, 2013.

Afoj, S., Tambalo, D.D., **Yost, C.K.** Genotypic diversity of *Escherichia coli* isolated from irrigation sites with the Qu'Appelle Valley watershed in Saskatchewan Canada. 63rd Annual Meeting for Canadian Society of Microbiologists. Carleton University, Ottawa, June 17-20, 2013.

Afroj S., **Yost, C.K.**, Jamieson, R. Exploring biofilm potential in *Escherichia coli* strains isolated from aquatic environments. 62nd Annual Conference of the Canadian Society of Microbiologists. University of British Columbia, Vancouver, BC. June 20-23, 2012 ***winner of Student Poster competition award.**

Vanderlinde E.M., Magnus, S.A., Tambalo, D.D., Koval, S.F., **Yost C.K.** Mutation of a broadly conserved operon from *Rhizobium leguminosarum* causes defects in cell morphology and envelope integrity. 62nd Annual Conference of the Canadian Society of Microbiologists. University of British Columbia, Vancouver, BC. June 20-23, 2012 ***winner of Student Oral Presentation award.**

Rahube, T., **Yost, C.K.** Characterization of multidrug resistance plasmids from non-clinical environments. 62nd Annual Conference of the Canadian Society of Microbiologists. University of British Columbia, Vancouver, BC. June 20-23, 2012

Halmillawewa, A., Restrepo M., **Yost, C.K.**, Hynes, M.F. Increasing the nodulation competitiveness of *Rhizobium* inoculants with the use of bacteriophages. 19th Evergreen International Phage Biology Meeting. The Evergreen State College, Olympia, Washington, USA. August 7-12, 2011

Restrepo M., Halmillawewa, A., **Yost, C.K.**, Hynes, M.F. Isolation and characterization of *Rhizobium leguminosarum* phages from western Canadian soils. 19th Evergreen International Phage Biology Meeting. The Evergreen State College, Olympia, Washington, USA. August 7-12, 2011

Yost, C.K., Boa, T., Fremaux, B. A *Bacteroidales* based bacterial source tracking approach is an effective method to assess sources of faecal pollution in an urban and agricultural mixed prairie watershed. 61st Annual Conference of the Canadian Society of Microbiologists. Memorial University of Newfoundland, St. John's, Newfoundland and Labrador. June 20-23, 2011

Halmillawewa, A., Restrepo M., **Yost, C.K.**, Hynes, M.F. Increasing the nodulation competitiveness of *Rhizobium* inoculants with the use of bacteriophages. 61st Annual conference of Canadian Society of Microbiologists. Memorial University of Newfoundland, St. John's, Newfoundland & Labrador. June 20-23, 2011

Restrepo M., Halmillawewa, A., Yost, C.K., Hynes, M.F. Isolation and characterization of *Rhizobium leguminosarum* phages from western Canadian soils. 61st Annual conference of Canadian Society of Microbiologists. Memorial University of Newfoundland, St. John's, Newfoundland & Labrador. June 20-23, 2011

Piorkowski, G., Jamieson, R., **Yost, C.**, Bezanson, G., Truelstrup-Hansen, L. 2011. Spatial variability of *Escherichia coli* strains within stream sediments of an agricultural watershed. 61st Annual conference of Canadian Society of Microbiologists. Memorial University of Newfoundland, St. John's, Newfoundland & Labrador. June 20-23, 2011

Ridley, C., Truelstrup-Hansen, L., **Yost, C.**, Jamieson, R., and Bezanson, G. 2011. Application of host-specific *Bacteroidales* 16S rRNA gene markers as a microbial source tracking tool within agricultural watersheds. 61st Annual conference of Canadian Society of Microbiologists. Memorial University of Newfoundland, St. John's, Newfoundland & Labrador. June 20-23, 2011

Vanderlinde, E.M., Magnus, S.A., Tambalo, D.D., **Yost, C.K.** Mutation of a highly conserved operon containing a novel MoxR AAA+ ATPase-like gene effects cell morphology and cell envelope structure in *Rhizobium leguminosarum*. Gordon Conference on Bacterial Cell Surfaces. Colby-Sawyer College, New London, New Hampshire, USA. June 27-July 2, 2010.

Foreman, D.L., Vanderlinde, E.M., **Yost, C.K.** Characterization of the outer membrane of the plant symbiont *Rhizobium leguminosarum* using mutagenic approaches. Colby-Sawyer College, New London, New Hampshire, USA. June 27-July 2, 2010.

Halmillawewa, A., Restrepo M., Fegan, J.E., Kaufman, L., Tambalo, D.D., **Yost, C.K.**, Hynes, M.F. Characterization of novel *Rhizobium* phage from various legume soils. 21st North American Symbiotic Nitrogen Fixation Conference. University of Missouri, Columbia, Missouri, USA. June 13-18, 2010.

Rahube, T., Fremaux, B., **Yost, C.K.** Characterizing plasmid-borne resistance genes and monitoring their dissemination in the environment. 60th Annual Conference of the Canadian Society of Microbiologists. McMaster University, Hamilton, Ontario. June 14-17, 2010.

Restrepo, M., Wilson, A.M., Bustard, D.E., Greenwood, P.R., **Yost, C.K.**, Hynes, M.F. Characterization of the multidrug-resistance efflux pump mexAB of *Rhizobium leguminosarum* biovar *viciae* strains 3841 and VF39SM. 60th Annual Conference of the Canadian Society of Microbiologists. McMaster University, Hamilton, Ontario. June 14-17, 2010.

Rahube, T., Fremaux, B., **Yost, C.K.** Characterizing plasmid-borne resistance genes and monitoring their dissemination in the environment. ASM Conference on Antimicrobial Resistance in Zoonotic Bacteria and Foodborne Pathogens in Animals, Humans, and the Environment. Toronto, Ontario. June 8-11, 2010.

Yost, C.K., Fremaux, B., Boa, T., Baily, J., and Cessna, A. Assessing water quality in agriculturally influenced watersheds using *Bacteroidales*-based microbial source tracking and detection of antibiotics. 59th Annual Conference of the Canadian Society of Microbiologists. Concordia University, Montreal, Quebec. June 15-18, 2009.

Yost, C.K., Frost, D., Vanderlinde, E. M., and Hynes, M.F. Isolating nodulating strains of *Rhizobium leguminosarum* that are less susceptible to protozoal grazing. 59th Annual Conference of the Canadian Society of Microbiologists. Concordia University, Montreal, Quebec. June 15-18, 2009.

Foreman, D.L., Vanderlinde, E.M., and **Yost, C.K.** The sensor kinase ChvG is required for regulation of *ropB*, a gene important for outer membrane stability in *Rhizobium leguminosarum*. 16th International Congress on Nitrogen Fixation. Big Sky Montana, USA. June 14-19, 2009.

Vanderlinde, E.M., Muszynski, A., Harrison, J.J., Koval, S.F., Foreman, D.L., Ceri, H., Kannenberg, E.L., Carlson, R.W., **Yost, C.K.** *Rhizobium leguminosarum* requires 27-hydroxyoctacosanoate-modified lipopolysaccharide for desiccation tolerance, biofilm formation, and motility. 16th International Congress on Nitrogen Fixation. Big Sky Montana, USA. June 14-19, 2009.

Vanderlinde, E., Foreman, D., Magnus, S., and **Yost, C.** Mutagenesis reveals new insights into the function of the cell envelope in *Rhizobium leguminosarum*. 8th European Nitrogen Fixation Conference. University of Gent, Gent, Belgium. August 30-September 3, 2008.

Boa, T.B., Levett, P.N., and **Yost, C.K.** University of Regina public computer terminals as reservoirs for methicillin-resistant *Staphylococcus aureus*. 58th Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Foreman D., and **Yost, C.K.** RopB is a structural component of the outer membrane in *Rhizobium leguminosarum* and is not required for effective symbiosis. 58th Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Fremaux, B., Gritzfeld, J.G., Boa, T.B., Chaykowski, A.C., Kasichayanula, S.K., Brault, L.B., and **Yost, C.K.** Improving the microbial quality of irrigation water in Saskatchewan using monitoring and microbial source tracking. 58th Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Vanderline, E.M., Harrison, J.J., Muszynski, A., Carlson, R.W., Turner, R.J., and **Yost, C.K.** A novel ABC transporter (*reeABC*) involved in exopolysaccharide export is required for desiccation tolerance and biofilm formation in *Rhizobium leguminosarum* biovar *viciae* 3841. 58th Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Yost, C.K., Magnus, S.A., Vanderlinde, E.M., and Foreman, D.L. A Von Willebrand Factor Type A protein, associated with a MoxR AAA+ ATPase is involved in the proper development of the cell envelope of *Rhizobium leguminosarum* biovar *viciae* 3841. 58th Annual Meeting for the Canadian Society of Microbiologists. University of Calgary, Calgary, AB. June 9-12, 2008.

Vanderlinde, E. M., Gilbert, K. G., and **Yost, C. K.** The cell envelope and desiccation tolerance in *Rhizobium leguminosarum* . North American Symbiotic Nitrogen Fixation Conference. Marquette University, Milwaukee, Wisconsin. July 10-14, 2007.

Foreman, D. F., Tsui, C., S., and **Yost, C. K.** Investigating the role of the five DegP proteases of *Rhizobium leguminosarum*. 20th North American Symbiotic Nitrogen Fixation Conference. Marquette University, Milwaukee, Wisconsin. July 10-14, 2007.

Yost, C. K., Lohans, C. T., Colpitts, C. C., and Suh, D-Y. Characterization of a type III poly-ketide synthase-like locus from *Rhizobium leguminosarum* bv. *viciae* 3841. 20th North American Symbiotic Nitrogen Fixation Conference. Marquette University, Milwaukee, Wisconsin. July 10-14, 2007.

Foreman, D. F., Tsui, C., S., and **Yost, C. K.** Investigating the role of the five DegP proteases of *Rhizobium leguminosarum*. 57th Annual Meeting for the Canadian Society of Microbiologists. University Laval, Quebec City, QC. June 17-20, 2007.

Vanderlinde, E. M., Gilbert, K. G., and **Yost, C. K.** The cell envelope and desiccation tolerance in *Rhizobium leguminosarum*. 57th Annual Meeting for the Canadian Society of Microbiologists. University Laval, Quebec City, QC. June 17-20, 2007.