

October 26, 2011

Dr. Roberto Alva
Senior Director, Clinical R&D
Merial Limited
Tel: 706.552.2708
Email: roberto.alva@merial.com

Dear Dr. Alva,

As in the past years, we are excited to submit our application for the 2012 Merial Veterinary Scholars Research Program. The contact information for the Program Director, which happens to be myself, is provided below:

Dr. Baljit Singh
Western College of Veterinary Medicine
52 Campus Drive
University of Saskatchewan
Saskatoon, SK S7N 5B4
Email: baljit.singh@usask.ca
Tel: 306-966-7068
Fax: 306-966-7274

The WCVM Merial Scholars and the faculty have made very positive comments of their involvement in the program. They are especially appreciative of the opportunity to attend the Symposium for advancing their knowledge, to present their research and to network with other Scholars.

We very much appreciate your consideration of our application for the 2012 program and look forward to continued involvement with the Merial Veterinary Scholars Research Program and the Symposium. In the meantime, please let me know if any additional information is needed.

Thank you

Yours sincerely,



Baljit Singh, BVSc&AH, MVSc, PhD
3M National Teaching Fellow
Associate Dean (Research)

Merial Veterinary Scholars Program Funding Application Template

I. Descriptive Information

1. School Name:	Western College of Veterinary Medicine, University of Saskatchewan
2. MVSP Application Year:	2012
3. Name of Program Director(s): Telephone number: Email Address:	Dr. Baljit Singh Tel: 1.306.966.7068 Email: Baljit.singh@usask.ca
Proposed 2012 Program	
4. Total number of Merial student slots planned – encompassing both Merial funding and school matching funds? (example: if 1 student = \$5K then \$10K requested from Merial + the school’s matching \$10K; equals a total of \$20K or planned funding for 4 Merial scholars)	4
5. Amount of 2012 matching funds (for student stipends and non-host student travel only) requested from Merial? (using above example = \$10K)	\$15,000
6. Total number of MVSP slots planned for non-host students?	1
7. Would you be willing to plan for one of your non-host slots would be for a student from Utrecht or the French veterinary schools?	Yes
8. When combining Merial and school matching funds, the amount of stipend per week students will receive (Merial program support should be consistent with NIH T-35 stipend – if not please briefly explain)	\$556.25/week; \$8900/16 week + <i>\$500 research allowance to each Scholar</i> ; Total \$37600
9. Will the Merial funds be used only for stipends and non-host student travel? (yes/no)	Yes
10. What is the source of matching funds?	\$24,600 from the Interprovincial Undergraduate Student Research Fund;
11. Duration of the Merial funded research program in weeks (if not weeks, please specify)	16 weeks
12. If an award is made to your school, will your website be live by December, 15, 2011? (yes/no)	Yes
13. If an award is made, will your website comply with the website requirements described in the Instructions to Applicant Schools? (yes/no)	Yes
14. If an award is made, to whom should the check be made payable?	Western College of Veterinary Medicine
15. Contact person (e.g. business office) who can address questions to ensure proper receipt and processing of the MVSP award check (questions may include: W9s, W8s, tax ID numbers, new Vendor Accounts, etc)	<ul style="list-style-type: none"> • Name: Elise Painchaud-Rattai • Telephone: 1.306.966.7068 • Email address: elise.painchaud@usask.ca

2011 Program Review	
1. Number of Merial Slots planned for non-host students at your school in 2011?	1-2
2. Number of non-host student(s) who received Merial funding at your school in 2011?	One; Heather Kittrell
3. What were their home institution(s)?	Louisiana State University, Baton rouge
4. Did the program director attend the 2011 Merial/NIH Symposium? (yes/no)	Yes; Acting Program Director Dr. V. Misra
5. How many veterinary students from the MVSP attended the 2011 Merial/NIH Symposium?	Three; one of the Merial students could not attend because of health issues.
6. If known, how many veterinary students with T35, university, or other funded research attended the 2011 Merial/NIH Symposium?	None
7. Regarding your 2011 Merial program website – did it have a link on the Merial Scholars overall Program website? (e.g. non host students could go to the Merial overall Scholars Program website and click on a link to navigate to the program at your school)	Yes
8. Regarding your 2011 Merial program website - were both host school and non-host students able to apply electronically (includes via email) (yes/no)	Yes

II. 2012 Program Proposal (this section on 2012 not to exceed 3 pages, 10 pt Arial font, 0.5 inch margins)

A. Program Objectives and Description (include any relevant program synergies or touch points with related research or summer programs for veterinary students at your school)

A.1. Synergies with the College and the University Programs: *With the foundational principle that the organization of the "College is designed to encourage an integrated program of teaching, research and service", the faculty at Western College of Veterinary Medicine has worked very hard and innovatively to excite veterinary graduates to pursue advanced training in biomedical research by providing positive research experience at an earlier stage during their veterinary medical training. The faculty remains committed to providing an excellent summer research program to veterinary medical students. The funding for the WCVM Scholars program since 2005 has synergized and enhanced the long-established Undergraduate Summer Research Program at the College. Now, the university has identified "Undergraduate Research" as one of the priorities for the current and the next plan and has recently approved funding for an enhanced campus-wide undergraduate research program.*

A.2. Foundational Objectives of the Program: *The foundational objectives of the program are to provide a structured, integrated and positive experience in biomedical and translational research in established and supportive research environment to selected students from our and other colleges. This program will include a hypothesis-driven research project and extracurricular activities such as visits to research institutes, curriculum vitae preparation, critical thinking and communication skills.*

A.3. Synopsis of the 2011 Program: *With one student from the Louisiana State University, we had a total of 4 Merial Veterinary Scholars this year. As outlined in the last application, the students were provided a structured, rigorous and positive research experience including a research project, visits to research institutes, basic training in animal care, laboratory safety, biosafety and critical review of the published literature. Our scholars presented their work at the Symposium organized by the University of Florida in Orlando. They also presented their posters at the Undergraduate Student Research Poster Days of Western College of Veterinary Medicine held on September 6-8, 2011 where one of the Merial Scholars, won the overall best poster prize out of 32 posters. The exit interviews clearly show the positive experience of the Scholars.*

A.4. The 2012 Application: *Similar to the previous seven years, we aim to provide a rich and stimulating research experience to the Merial Scholars in 2012. The application continues the components tested and finalized in the previous iterations of the program.*

A.5. Resources for the Proposed Summer Student Research Program:

A.5.1. Faculty and Funding:

1. The College faculty has undergone a major turn-over since the start of the Scholars Program at the WCVM. We have recruited many outstanding new faculty members including prestigious Canada Research Chairs, and are in the process of hiring a cohort of three new biomedical scientists.
2. The College has research chairs such as the Canada Research Chairs and Beef Research Chairs.
3. The College is recognized for its established interdisciplinary research excellence in *Reproductive Physiology, Infectious Diseases, Immunology, Virology, Toxicology, Food Safety, Wildlife Pathology and Neuroscience*.
4. In addition, the College has scientists from the Public Health Agency of Canada and the Agriculture Agri-food Canada located in its building.
5. The extra-mural funding secured by our faculty has shown a four-fold increase in the last 5 years.
6. The graduate student numbers have also increased by 35% over the past 5 years.
7. Our faculty's recruits 5-8 undergraduate students out of university-wide allocation of nearly 75 students through a federal undergraduate summer research program.

A.5.2. Research environment:

1. The College has *first-rate research infrastructure* for advanced microscopy (single and double-photon confocal, intravital and biomicroscopes; electron microscope, ultrasonographs along with advanced image analyses softwares), cell culture, radio-immunoassay, animal models, and molecular biology (Quantitative RT-PCR, Western blots, In situ hybridization and flow cytometry).
2. There are more than *100 graduate students* supervised by faculty in Veterinary Biomedical Sciences, Veterinary Microbiology and Veterinary Pathology.
3. The College has *weekly seminar series and journal clubs* in Microbiology, Biomedical Sciences, Reproductive Biology and Pathology.

4. The College has shared research laboratories in the Research Wing and a renovated Animal Care Unit.

A.5.3. Track record:

1. The Merck-Merial Scholars from 2005-2011 have presented their papers the symposium as well as the Undergraduate Research day of the WCVM.
2. The Scholars have and continue to publish peer-reviewed manuscripts and attend conferences.
3. Heather Kittrell, the non-host Merial Scholar, won Phi Zeta Award at the Louisiana State University for her summer project “Is diarrhoea preceded by changes in normal gut microbiota?”
4. Out of 23 Merial scholars who have finished DVM degrees so far, *nine (40%) of them including one in dual DVM-MSc program have pursued further training in research.* This rate of pursuing advanced training is higher than the rate (33%) for non-Merial summer research students.

B. Research and extracurricular activities information including Workshops/Trips – plans and goals;

B.1. Research activities: As in the past, the objective of the training program is to engage and expose the scholars to project design, execution and analysis (*critical reading of published data, hypothesis formulation and methodology*), data presentation to an audience, leading discussions in journal clubs, abstract or manuscript preparation and issues such as use of animals in research and safe laboratory practices.

1. The scholars will *formulate hypothesis-driven research projects* in collaboration with mentors.
2. The project will be designed with *clear endpoints* to enable a scholar to take *ownership of a particular component* of the project in a mentor’s laboratory and be included as an author.
3. The scholars will *meet with the Program Director and/ Associate Dean (Research) every month* to review their progress.
4. The scholars will prepare *an abstract* from the data obtained from their projects for *presentation at a conference or at the scholars’ symposium.*

B.2. Extracurricular and other academic enrichment activities:

	Planned Activity	Activity Goals
1	Journal clubs in respective laboratories	Critical reading and discussion of literature
2	Training in laboratory animal handling	Train Scholars in safe laboratory practices and ethics related to use of animals in research
3	Training in biosafety	
4	Training in laboratory safety	
5	Visit to Vaccine and Infectious Disease Organization; www.vido.org	Exposure to some of the most advanced facilities in vaccinology, infectious diseases and synchrotron imaging in the world
6	Visit to National Foreign Animal Disease Laboratory, Winnipeg	
7	Visit to Canadian Light Source; www.cls.ca	
8	Workshops: A. Grant Preparation; B. Scientific Communication; C. Critical Review of Scientific Papers; D. Establishing a Research Laboratory	Train Scholars in importance of effective communication of science, critical thinking and
9	Meetings with veterinarians working in pharmaceutical industry and government	Exposure of Scholars to career paths other than veterinary practice
10	Monthly presentation of the data to other Scholars, Mentors, Program Director and the Associate Dean	Gain experience in scientific communication and how to provide constructive feedback

B.3. Training assessment and tracking:

1. The scholars will submit a *final report* to the Program Director to demonstrate their research training and experiences.
2. The scholars will present their research at the National symposium and the College’s Summer Student Research Poster Day.
3. We will track presentation *at conferences and submission of peer-reviewed manuscripts.*
4. We will conduct *exit interviews* with the scholars.
5. The scholars will be *tracked for 10 years to determine the impact of the program.*
6. As per requirements, a *final report* will be submitted to the funding agency and *feedback will be sought* on how to improve the program.

C. Advertising and application processes, including criteria to be used for Scholar Selection and criteria to be used for Mentor Selection

C.1. Advertisement:

1. The program will be posted on the website by December 15, 2011.
2. The program information will be sent to Program Directors at other funded schools as well as to the Associate Deans (Research) at veterinary colleges that are not funded by Merial Veterinary Scholars Program.
3. The website will be accessible without a password to students from other colleges.
4. The application form will be available on the website for electronic submission.
5. A list of mentors, their areas of research and contact information will be hyper-texted on the website.
6. Names and contact information for the program alumni will also be posted with their permission.
7. The extracurricular activities will be listed.

C.2. Selection

December 15, 2011: Merial Program updated on the College website		
↓		
February 07, 2012: Deadline for application		
↓		
February 15, 2012: Announcement of selected Scholars		
Criteria:	1. <i>Applicant:</i>	<ul style="list-style-type: none"> a. Academic performance b. Letter of intent including the proposal c. Preference to those who do not have previous research experience
	2. <i>Mentor:</i>	<ul style="list-style-type: none"> a. Track record in undergraduate student research b. Comments from previous summer research students c. Extra-mural funding d. Research group: Graduate students, Postdoctoral fellows & Technician e. Journal clubs in the laboratory

D. Program Budget

1	Total number of Scholars	4
2	<i>Scholars from non-host Schools</i>	1-2
3	Funds requested from the Merial Veterinary Scholar Research Program @ \$3750/scholar	\$15,000
4	<i>Matching funds from the Interprovincial (IP) Fund, Western College of Veterinary Medicine</i>	\$20,600
5	<i>Funds for enrichment activities from IP Fund of Western College of Veterinary Medicine</i>	\$2000
6	<i>Contribution to the research fund of \$500/scholar by Western College of Veterinary Medicine</i>	\$2000
	Total	\$39,600

Each Scholar will be paid ~\$555/week and a total of \$8900 for the 16 week period. This amount is slightly more than the T35 rate. In total, the College will match the requested \$15,000 with \$24,600.

E. Additional Information

1. The major theme of our university's 2nd Integrated Plan (2008-2012) is to further enhance undergraduate student experience including development of more research opportunities. The WCVM is recognized for its well-established undergraduate research program for participation in campus-wide inter-disciplinary biomedical research.
2. We have recruited students from non-host schools every year including one from University of Berne since the program was initiated at Western College of Veterinary Medicine in 2005.
3. The college has provided funding every year for extra-curricular activities and travel funds for the non-host students.

III. 2011 Program Review (if funded in 2011)

A. Proposed changes to 2012 program from 2011 and previous years and reasons why or why not

We will start a monthly platform presentation of research data by Merial Scholars.

And, we will continue with \$500 research allowance from our College funds to the stipend for the Scholars.

Other than this, we continue to move with the program and continue to look forward to the guidance and feedback from the Selection Committee.

B. Synopsis of all extra-research activities organized for the 2011 program

1. Tour of Vaccine and Infectious Disease Organization, and the Canadian Light Source which is Canada's only synchrotron radiation facility.
2. Journal discussion clubs in individual laboratories
3. Training in laboratory and bio-safety procedures
4. Training in animal handling and care
5. Three lunch (pizza) meetings with scholars and their mentors with the Program Director to discuss their progress and also to talk about research and its place in veterinary medicine
6. Participation in the Undergraduate Research Days of the Western College of Veterinary Medicine on Sept 6-8

Workshop Series:

- I. Data Communication Platform & Poster Design – Dr. Janet Hill, Monday, May 9, 2011
- II. Critical Reading of a Science Paper – Dr. Gillian Muir, Monday, May 16, 2011
- III. Experimental Design/Data Analysis – Dr. John Campbell, Tuesday, May 24, 2011
- IV. Preparing a Manuscript & Review Process – Dr. Vikram Misra, Monday, May 30, 2011

C. Director's and scholars' review of the 2011 symposium and suggested changes to the future symposia

The Scholars viewed that lunch hour seminars/talks affected their abilities to network and also the poster presentations.

ATTACHMENT 1: Merial scholar Alumni (from your institution only – information is not needed for non-host students.)

An update of Merial scholar alumni from your institution in the new **Excel format** that provides:

- 1) The scholars' by identifying number, initials or name.
- 2) Year of MVSP scholarship.
- 3) Year of DVM.
- 3) Career paths to date (minimum to first employment post veterinary graduation) using categorical classification where possible (e.g. advanced education, private practice, industry, etc.).
- 4) Please indicate the total MVSP alumni tracked in each year relative to the total veterinary school alumni number in each year (% tracked).

ATTACHMENT 2: All student and faculty exit interviews and program evaluation forms (Please include unedited responses from scholars and mentors - Comments may be provided anonymously)