THE UNIVERSITY OF BRITISH COLUMBIA

Vice President Academic and Provost
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MEMORANDUM

April 5, 2007

To: Senate
c/o Lisa Collins, Assistant Registrar, Senate & Curriculum Services

From: George A. Mackie
Vice President Academic and Provost *pro tem*

Re: Establishment of the Drug Research Institute

Recommendation:

I recommend that Senate approve the establishment of the Drug Research Institute, effective May 1, 2007

Rationale:

The Drug Research Institute (DRI) will be the core academic research facility for the Centre for Drug Research and Development (CDRD). The CDRD is a joint initiative of eight BC research institutions – University of British Columbia, Simon Fraser University, BC Cancer Agency, University of Victoria, University of Northern British Columbia, Providence Healthcare, Vancouver Coastal Health, and the Provincial Health Services Association, in partnership with government and industry. The CDRD was incorporated as a non-profit British Columbia Society on March 30, 2007.

The DRI is an inter-Faculty initiative of Pharmaceutical Sciences, Medicine, Science, Applied Science, Dentistry and the Sauder School of Business, led by Pharmaceutical Sciences.

The proposal to establish the DRI has been reviewed by the Committee of Deans.

The detailed background is contained in the attached proposal, dated March 2007.

Attachment: Proposal, Drug Research Institute, March 2007

1. Summary

The UBC **Drug Research Institute ("DRI")** of the Centre for Drug Research and Development ("CDRD") is seeking Senate approval for operation at UBC. This document outlines the rationale, scope and governance of DRI.

CDRD's mission is to bridge the gap between academic discoveries in the health sciences and the development of new medicines to treat human diseases. The DRI is the academic research arm of CDRD. Using funds from CFI and other funding sources (without any UBC General Purpose Operating Funds) DRI will provide state-of-the-art facilities and equipment for individual investigators to pursue drug development activities. The DRI will house skilled personnel in the fields of drug discovery and development who can mentor and promote interdisciplinary collaborations necessary to acquire the complete data sets needed to justify clinical development of discoveries and create a training ground for the next generation of experts in drug discovery and development.

CDRD is a joint initiative of eight BC research institutions (including University of British Columbia, Simon Fraser University, BC Cancer Agency, University of Victoria, University of Northern British Columbia, Providence Healthcare, Vancouver Coastal Health, and the Provincial Health Services Association) in partnership with government and industry. CDRD is a non profit society owned by the affiliated institutions and employs a novel hybrid model with two components, DRI and a related drug development company, Drug Development Inc. (DDI). DDI is also owned by the affiliated institutions. CDRD, through DRI, has the mandate of developing novel drug technologies in the academic sector and facilitating the collaborative studies required to establish pharmaceutical potential. DDI, on the other hand, has the mandate of generating, using the resources of CDRD, complete data packages for selected drugs discovered in the academic sector and commercializing these products by licensing to existing companies or establishing new spin-off companies. All profits made by DDI will flow back to CDRD.

CDRD and the DRI offer UBC the opportunity to be a key part of a breakthrough initiative to create Canada's first unified approach to commercializing innovative BC discoveries and building BC's research and development capacity.

2. The Need for CDRD – Bridging the Gap Between Research and New Therapeutics

Canadian academic medical research is internationally competitive. However, our ability to translate discoveries into new drugs and technologies that result in economic and health gains for Canadians is inadequate. This situation arises, in part, because the discovery-level data package is usually insufficient to establish therapeutic potential. Further, it is difficult for individual researchers to develop more complete drug profiles due to the lack of appropriate drug development expertise and infrastructure as well as a lack of access to the interdisciplinary collaborations needed to fully characterize a drug technology. As a result the therapeutic potential of a given academic discovery is either not exploited at all, or premature attempts are made to commercialize the discovery, resulting in very high failure rates. There is a significant need to advance medical technologies further within academia before moving them out into the commercial world.

The Centre for Drug Research and Development (CDRD) is a unique initiative to promote research, development and commercialization of innovative medical discoveries. CDRD will

bridge the "commercialization gap" that exists between medical discoveries and the commercial opportunity (Figure 1).

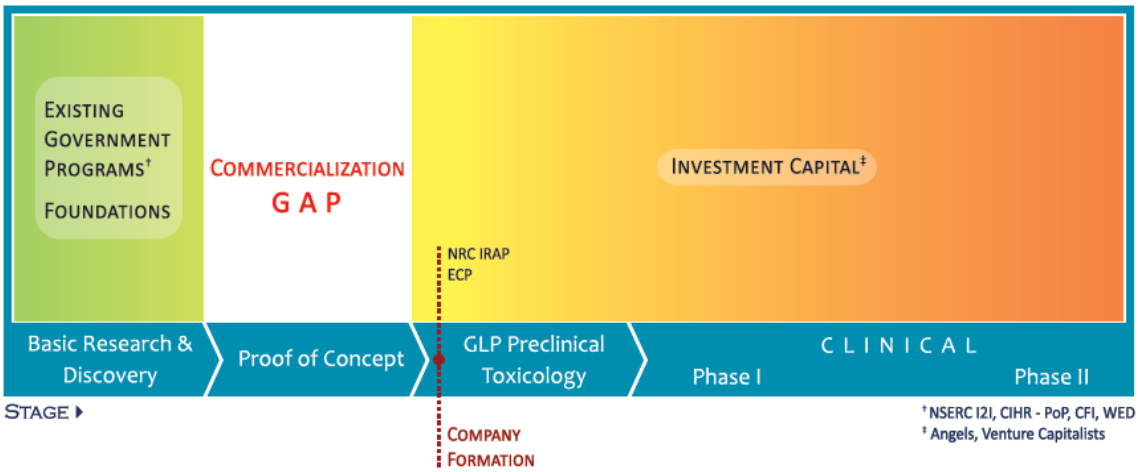


Figure 1: CDRD fills the commercialization gap between academic discoveries and the business opportunity.

The DRI represents the core central laboratory and equipment facilities for CDRD with the resources indicated in Table 1 and with the associated need for technical staff to run the facilities.

Table 1: Facilities available through DRI

DRI-UBC: Equipment by Division

Division of Target Identification: Facilities will include a variety of sub-cellular high resolution imaging equipment to identify and confirm new drug targets as well as a microarray apparatus to facilitate target discovery by identifying patterns of gene expression associated with disease. A variety of other equipment to probe the biochemistry of disease, including technology for amplifying targets, determining crystal structures of proteins and for following fluorescence tags in tissues or cells will also be in place.

Division of Drug Screening: Facilities will contain equipment for the screening of drug 'libraries' in order to identify lead drug candidates for development. Such equipment includes confocal imaging for measuring responses at a subcellular level in live cells, robotic equipment for rapid handling of samples in the micron size range and other automated sampling and detection equipment. Equipment to screen, synthesize, and purify peptides that are inhibitors of particular drug targets will also be available.

Division of Drug Design and Synthesis: DRI-UBC facilities will enable modification of lead drug candidates to optimize activity as well as the design of pathways for large scale production. Dedicated NMR instrumentation to determine the structure of lead compounds will be available, as well as sophisticated HPLC equipment to characterize drug purity and to develop assays needed for subsequent in vivo studies. A variety of basic chemical design and synthesis equipment will also allow state-of-the-art medicinal chemistry capabilities.

Division of Drug Delivery: Facilities will include basic equipment required to formulate drugs so that they can be administered to animals and subsequently, people. Associated equipment will allow the preparation and characterization of nanoparticulate drug delivery systems, such as sizing apparatus, cryo-electron microscopy facilities to visualize the interior of nanoparticulates and facilities to detect the location of such systems in vivo.

Division of Drug Evaluation: Facilities will include equipment for rapid, high throughput robotic assay of the ADME-Toxicology studies of lead drug candidates in biological samples. A variety of other imaging equipment that will aid in the monitoring the effects of lead drug candidates in animal models of disease and visualizing disease progression will also be available. Finally, animal efficacy and toxicity studies will be conducted through animal facilities available in the Life Sciences Centre at UBC and the BC Cancer Agency.

3. Mission and Objectives

- **Mission** – DRI plays a key role in CDRD's mission to advance promising medical discoveries from academia to a commercially attractive stage; and to build a collaborative research infrastructure to increase research and development capacity in BC.

  CDRD and DRI will assist in the maturation of drug technologies in three ways:

  - First, CDRD using DRI, will act as a general resource for BC's investigators requiring drug discovery and development resources. DRI will provide state-of-the-art instrumentation, mentorship and other resources for investigator-driven initiatives in the drug discovery and development process.
  - Second, CDRD, using DRI, will drive the drug development process by facilitating and promoting the collaborative studies between CDRD investigators in different disciplines and institutions that are required to establish the pharmaceutical potential of early stage discoveries. This will advance potential products originating from academic discoveries to establish a product pipeline within CDRD. As these potential drugs are progressively matured using DRI facilities and personnel they will become increasingly attractive candidates for commercialization to benefit academic researchers and universities.
  - Third, CDRD is intimately affiliated with a commercial entity, Drug Development Inc. (DDI) that will license technologies from research institutions using existing technology transfer offices and move selected, later stage academic drug discoveries through to the Proof of Concept stage. DDI will pay fees to CDRD for use of the DRI facilities for its projects. These fees and any profits from DDI will go to CDRD and provide long-term sustainability for the DRI.

4. Expected Outcomes

The ability of BC Life Sciences investigators to successfully to produce technologies with commercial potential has been hindered in the past by the lack of facilities, equipment and expertise. To establish the core facilities, a CFI grant has been awarded in the amounts of $20 million in infrastructure support for the first DRI facility to be located at UBC. These funds include $9 million for facilities construction and $11 million for new equipment. CDRD has also been awarded a CIHR equipment grant for $750,000 for DRI equipment. CDRD is seeking $25 million from the Provincial government and $1 million from the Michael Smith Foundation for Health Research to fund the operation of the infrastructure, including DRI.

In its startup phase, CDRD has already managed to make an impact -- Of the five CIHR Proof of Principle Grants awarded to BC researchers in January 2007, CDRD Investigators were responsible for three of these and CDRD directly facilitated two of these projects totaling $400,000 in federal funding.

CDRD will provide significant benefits to the British Columbia Life Sciences Researchers including:

- Increased numbers of highly qualified personnel;
- More opportunities for commercialization of academic discoveries;
- enhanced opportunities for cross-disciplinary collaboration, especially in areas where it is difficult to find collaborators (e.g., animal models of disease, scale-up chemistry, screening assays, functional genomics, etc.);

- access to experienced mentors to assist in exploiting the applications of basic life science discoveries;
- development of the applications of fundamental research discoveries without requiring the researcher to adhere to an external corporate agenda;
- access to shared infrastructure containing the most advanced drug development equipment;
- access to grant facilitators and other support to enhance the collaborative research funding of individual members; and
- access to the CDRD searchable database for facilities, equipment, collaborators.

CDRD will provide significant benefits to the British Columbia Life Sciences Students including:

- Cross-disciplinary training and specialized drug development knowledge and skills;
- Rotation through the academic labs of mentors from the five CDRD divisions;
- Education modules in industry and management, in collaboration with university business schools and local biotechnology companies, with emphasis on product development, project management, knowledge translation and intellectual property;
- Flexible and accessible programs and workshops in coordination with Student Biology Network;
- Programs with existing co-op programs at SFU, BCIT, UBC, and UVic;
- Partnerships with the CIHR-funded training programs in Bioinformatics and Ethics at UBC, BCCA and SFU, the e-Learning Centre at UBC, and the MBA program at SFU, to enhance trainee access to courses, modules and workshops, and promote joint projects such as summer conferences and seminars; and
- In-kind or cash funding and resources for trainees from biotechnology and pharmaceutical corporate partners.

5. Impact on UBC and its Academic Mission

The following summarizes several issues related to the impact of the DRI on UBC's academic mission:

- No UBC General Purpose Operating Funds have been used, nor will they be requested by CDRD;
- UBC has provided significant in-kind contributions: allocation of approximately 13,000 sq. ft. of interim space at no cost in the Lower Mall Research Station; in-kind contributions related to the recently obtained CFI grant and the time of Division Heads (primarily UBC faculty) spent on CDRD;
- The unique model proposed for the DRI based at UBC ensures that UBC faculty members retain their primary appointments in academic units and their on-going academic responsibilities;
- The teaching mandate of the university will be enhanced through direct CDRD funding to support increased graduate student enrolment and increased opportunities for co-op and undergraduate research training;
- DRI represents the core central facility for CDRD and will house scientific and technical staff, as well as state-of-the-art equipment for access by UBC researchers. CDRD, through the UBC DRI, will benefit the research community at UBC in a number of ways that include: enhancing and promoting interdisciplinary research; mentorship in the discovery and development processes for drugs, devices, new materials etc; providing access to grants facilitators funded by CDRD for support for interdisciplinary grant funding initiatives; access to infrastructure on a reasonable cost-recovery basis;
- All intellectual property generated by UBC researchers will continue to be governed by UBC practices and policies; and
- Net financial benefit to the whole university is anticipated through direct revenue arising from, for example, licensing opportunities, equity in spin-off companies, milestone/royalty payments and fees-for-service charged to outside users of facilities.

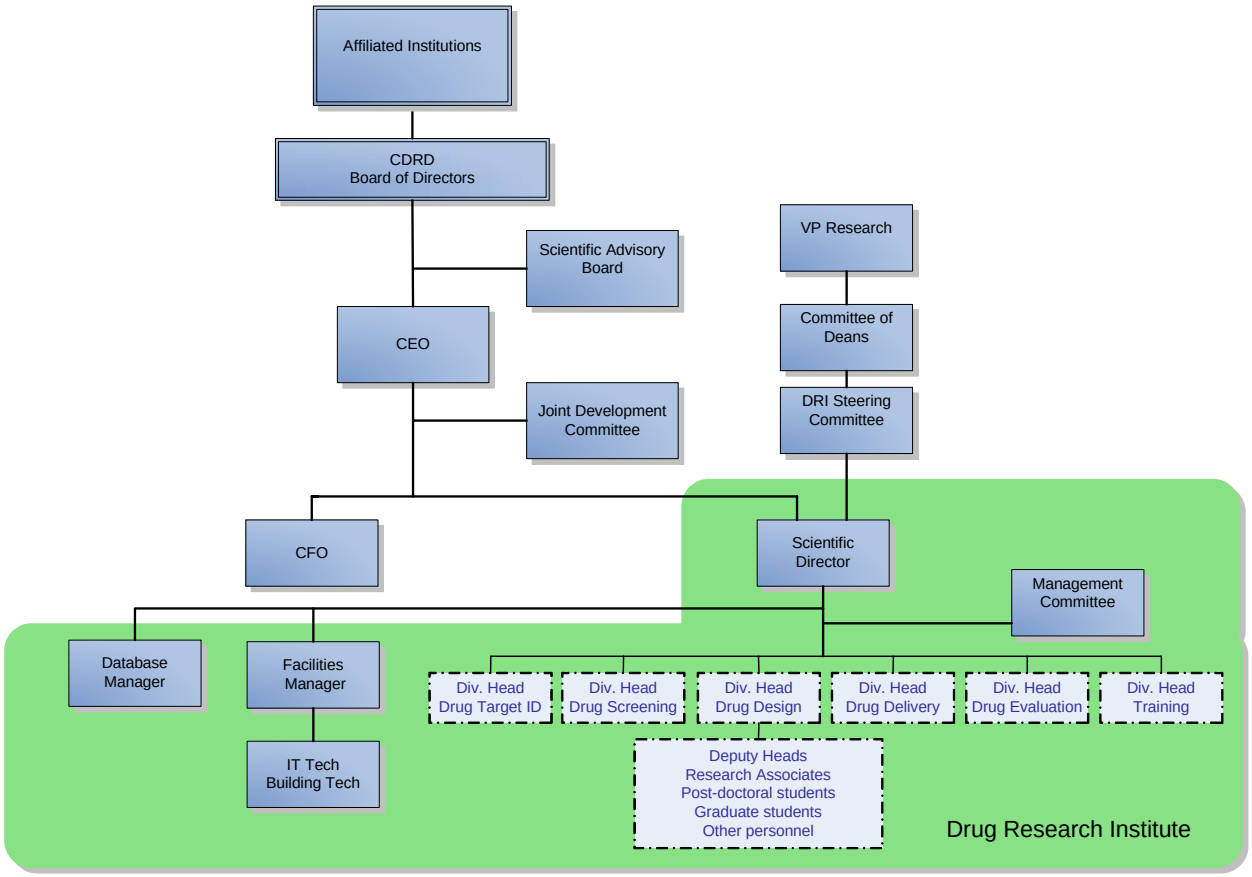
6. Governance

The DRI is led by a Director and overseen by a Steering Committee who will provide leadership and strategic vision related to the UBC DRI facilities and equipment (See Figure 2). The Steering Committee is comprised of five members (including the Director) and reports to a Committee of UBC Deans of the various UBC Faculties represented by DRI Investigators. The founding Director will be the Scientific Director of CDRD, Dr. Pieter Cullis. The Steering Committee will be made up of representatives of the life sciences academic community and will take representation from the key Faculties including Medicine, Science, Pharmaceutical Science, Applied Science and Commerce. The Committee of Deans will first be chaired by the Dean of Pharmaceutical Sciences and then it will rotate each year between the representative Faculties to also include Medicine, Science, Applied Science and Business. The Chair will report to the UBC Vice-President Research.

The day-to-day management of access to the facilities and equipment will be done through a Management Committee. Requests for use will be made through a Facilities Manager. Priorities will be decided according to an approximate 60:40 split, with 60% of time reserved for academic use and 40% for commercial use as contracted and compensated by DDI. The Management

Committee will establish guidelines as the use of facilities approaches capacity and make recommendations to the Steering Committee through the Scientific Director. The Management Committee will consist of the Facilities Manager, the Scientific Director and the five Division Heads.

Figure 2: CDRD Governance



Existing infrastructure located at the Affiliated Institutions may be designated as part of the overall facilities of DRI, which will be made available to CDRD Investigators through affiliation agreements.

Affiliation agreements between CDRD and the Affiliated Institutions of CDRD will address ownership and control of intellectual property, publications, in-kind contributions, access to faculty, students and personnel, equipment and facilities, conflicting institutional policies, and other related matters. Services and occupancy agreements will address operational matters.

CDRD, supported by the DRI facilities, will have the mandate to deliver specialized training to graduate students, postdoctoral researchers and technical personnel in drug discovery and development.

Any BC investigator with interest in drug development holding an academic or clinical appointment at an Affiliated Institution who is willing to contribute knowledge, mentorship and drug development expertise to advance CDRD's mission may be designated a CDRD

Investigator. Open access to infrastructure and expertise for all BC researchers is a key principle of CDRD. As of February 2006, more than 160 researchers from across BC have been recruited to participate in CDRD. Over the next 12 months, the number is expected to increase to over 200. CDRD Investigators will have preferred access to DRI facilities.

CDRD has a management team and will provide drug development services to BC researchers, and commercialize licensed technology through its commercial arm, Drug Development Inc. (DDI). The Board of CDRD will be nominated by the Affiliated Institutions and will have the usual powers associated with a Board, including the development of executive succession plans. CDRD will also have a Joint Development Committee (JDC) who will play a critical role in deciding which projects will be matured in CDRD and in monitoring the progress of projects through the CDRD infrastructure, ensuring that inter-departmental and inter-institutional issues are quickly dealt with. The JDC will be chaired by the CEO of CDRD and also include the CDRD Scientific Director, five Division Heads, and, to the extent that they are involved in CDRD projects, representative of the Affiliated Institutions.

Figure 3: Legal structure of CDRD

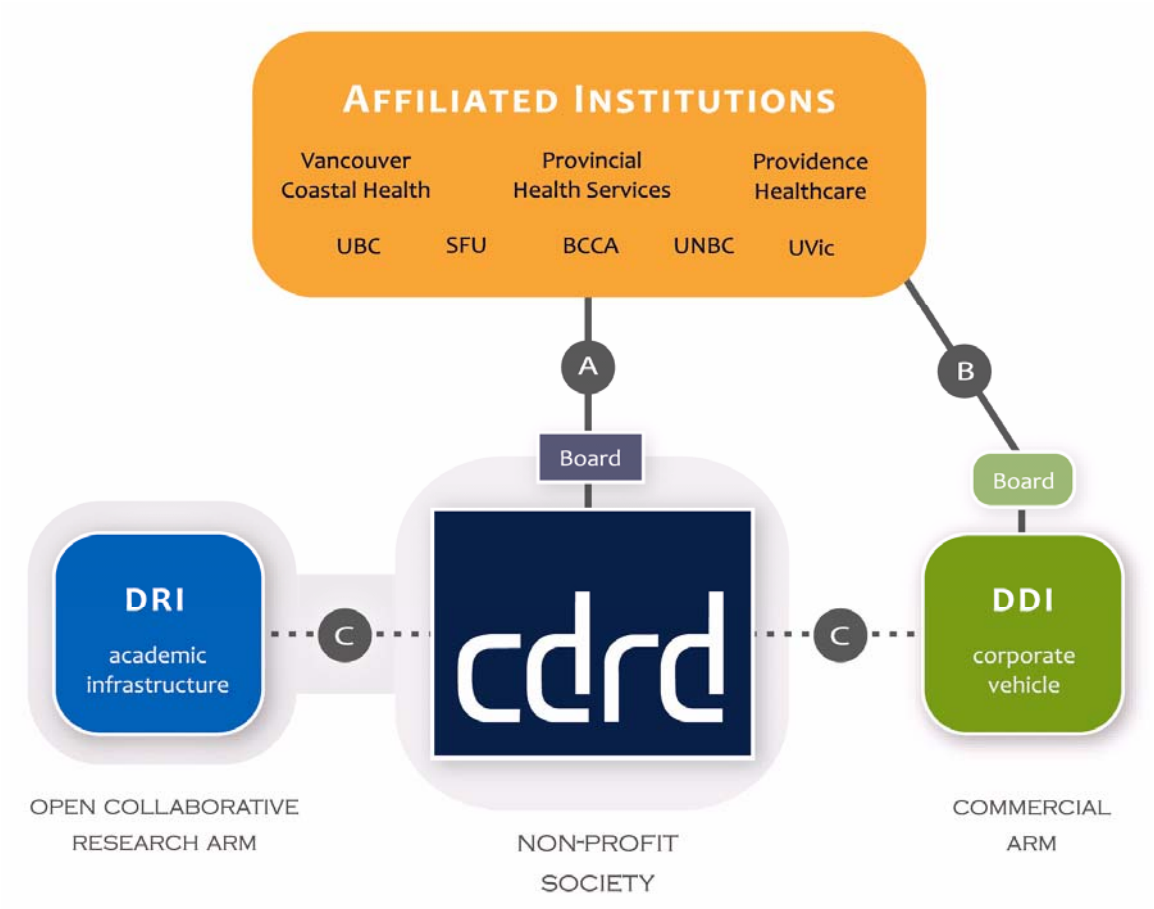


Table 2: CDRD Divisions and Division Heads

Division Description	Division Head	Affiliation
Target Identification	Robert Hancock	UBC - Department of Microbiology and Immunology
Screening	Michel Roberge	UBC - Department of Biochemistry and Molecular Biology
Design & Synthesis	Marco Ciufolini Robert Young	UBC - Department of Chemistry SFU
Drug Delivery	Helen Burt	UBC Faculty of Pharmaceutical Sciences
In-vivo Evaluation	Marcel Bally Robert Sindelar	BCCA Dean, UBC Faculty of Pharmaceutical Sciences

7. Budgetary Implications

CDRD has been established using no UBC General Purpose Operating Funds. Instead, $2.2 million in operating funds have been raised from the provincial and federal government, Simon Fraser University, and industry partners. CDRD has been awarded a CFI grant in the amount of $20 million in infrastructure support for the CDRD-DRI facility at UBC. These funds include $9 million for facilities construction and $11 million for new equipment as well as an additional $1.2 million to support overhead for these facilities. CDRD is seeking $25 million from the Provincial government and $1 million from the Michael Smith Foundation for Health Research to fund operation of the infrastructure to play an active role in facilitating the drug development process by providing access to expertise and resources including: project management, collaboration facilitation, experienced mentors, technicians, and grant facilitators required to drive discoveries through the five phases of drug development: drug target identification, screening, design, delivery and evaluation. The DRI will not request budgetary support from the UBC GPOF aside from the faculty salaries that are currently in place.

8. Training

CDRD is developing a comprehensive training and mentoring plan. This plan has three components, namely a plan for mentoring and training users of the DRI-UBC facility, a training program to address the shortage of highly qualified personnel in the drug development and biotechnology areas and the establishment of courses and conferences dealing with drug discovery and development. As indicated in previous sections, CDRD management will directly mentor CDRD members with regard to proving the pharmaceutical potential of their projects. The Facilities Manager and technical staff will organize training sessions on specialized apparatus for DRI-UBC users on a regular basis. In order to address the training of highly qualified personnel, CDRD will directly fund up to 25 co-op students, 25 graduate student positions and up to 15 Postdoctoral Fellows, in addition to accommodating trainees who have their own funding. The co-op students will be allocated to CDRD-facilitated projects, supervised by Postdoctoral Fellows, on an as needed basis and will gain basic skills in drug discovery/development in one of the Divisions of CDRD. The graduate students will be supervised by individual CDRD faculty and will conduct research to address issues related to a given drug candidate, class of drugs, devices, drug delivery systems, animal models among many possibilities. The funding for these positions will be allocated by the JDC as part of the support for longer-term projects that are being matured under the CDRD umbrella. The postdoctoral fellows will primarily be supervised by CDRD management and will be allocated to particular projects on a relatively short-term basis (e.g. six months) to provide the resources needed to rapidly advance a technology. The JDC will allocate these resources following recommendations by the PDG. In addition to training co-op students, graduate students and Postdoctoral Fellows, it is intended to expand towards training in the business of biotechnology and initiatives with the UBC and SFU Business Faculties will be pursued in this regard.

With regard to the establishment of courses and conferences on drug discovery and development, CDRD will first establish a yearly conference aimed at educating CDRD members on drug development issues and providing a forum for projects being pursued within CDRD. Second, CDRD will coordinate a course in drug development. It will provide a comprehensive overview of the drug development process starting from target identification to bringing a pharmaceutical product to market. The guest lecturers will cover topics such as the discovery process, preclinical studies, CMC/pharmaceutical development, clinical development and the U.S. and European regulatory review and approval processes. Finally, CDRD will, over the longer term (two to three years), contribute to an academic curriculum on drug discovery and development in conjunction with the Faculty of Pharmaceutical Sciences at UBC.

9. Summary

CDRD is a breakthrough initiative that positions British Columbia and UBC to be a Canadian leader in translating academic medical discoveries into business opportunities, using a collaborative shared infrastructure and expertise model to advance drug development and training opportunities in BC. The experimental resources provided by the DRI and its partners and the increased collaborations that these resources enable will have a profound impact on the capacity and quality of life sciences research and UBC. As an official University Centre, the DRI will have a significant and lasting benefit to the research community and UBC as well as for all researchers in the province of BC.

Appendix A – List of CDRD Investigators

Name	Affiliation
Division of Target Identification	
APARICIO, Sam	Professor, Dept Pathology and Lab Medicine, Vancouver Hosp & UBC
BORASTON, Alisdair	Asst. Prof., Biochemistry & Microbiology, UVic
BRINKMAN, Fiona	Assoc. Prof., Molecular Biol. & Biochem., SFU
BURKE, Robert	Professor, Dept. of Biology, UVic
CAIRNS, Brian	Asst Prof and Canada Research Chair, Faculty of Pharmaceut Sci, UBC
CAMERON, Caroline	Assoc. Prof, Biochemistry & Microbiology, UVic
CYNADER, Max S.	Director & Canada Research Chair, Brain Research Centre, UBC
DEDHAR, Shoukat	Professor, Dept of Biochemistry and Molecular Biology, UBC
DELANEY, Kerry	Professor, Dept. of Biology, UVic
DUNN, Sandra	Asst Prof, Pediatrics, UBC
FINLAY, Brett	Professor, Michael Smith Laboratories, UBC
FOSTER, Leonard	Asst Prof and Canada Research Chair, Biochem & Molecular Biol, UBC
GLEAVE, Martin	Director, Clinical Research, Prostate Centre
HANCOCK, Robert	Professor, Microbiology and Immunology, UBC
HELBING, Caren	Assoc. Prof., Biochemistry & Mol. Biol, UVic
HIETER, Phil	Professor and Director, Michael Smith Laboratories, UBC
HOWARD, Perry	Asst. Prof., Biochemistry & Microbiology, UVic
INGHAM, Rob	Asst. Prof., Biology, UVic
KARSAN, Aly	Associate Professor, Pathology & Lab Medicine, UBC
KAST, Juergen	Assistant Professor, Chemistry and Pathology & Lab Medicine, UBC
KRYSTAL, Gerald	Professor, Terry Fox Laboratory, UBC
LEE, Chow	Associate Professor, Biochemistry and Molecular Biology, UNBC
MCINTOSH, Lawrence	Professor, Biochemistry and Molecular Biology, UBC
MOORE, Margo	Professor, Biological Sciences, SFU
MORIN, Gregg	Professor and Head, Proteomics, Genome Sciences Centre, UBC
MUI, Alice	Assistant Professor Research- Jack Bell Research Centre/VGH Vancouver Hospital Authority
NANO, Francis	Prof., Biochemistry & Microbiology, UVic
NELSON, Brad	Adj. Assoc. Prof., Biochem & Microbiology, UVic, Director, Trev and Joyce Deeley Research Centre
OVERALL, Christopher	Professor & Canada Research Chair, Centre for Blood Research, UBC
PANTE, Nelly	Assoc. Professor, Department of Zoology, UBC
PAVLIDIS, Paul	Asst. Prof., Dept. of Psychiatry, UBC
PEARSON, Terry	Professor, Biochemistry and Molecular Biology, U Victoria
ROSKELLEY, Cal	University Scholar & Assoc Prof, Dept Cellular & Physiol Sci, UBC
SCHRADER, John	Professor and Director, Biomedical Research Centre, UBC
UNDERHILL, T. Michael	Associate Professor, Cellular & Physiological Sciences, UBC
WITHERS, Stephen	Professor, Chemistry, UBC
Division of Drug Screening	
BREDEN, Felix	Assoc. Prof, Biological Sciences, SFU
BROLO, Alexandre	Assoc. Prof., Chemistry, UVic
BROMME, Dieter	Professor and Canada Research Chair, Faculty of Dentistry, UBC
CHOW, Robert	Asst. Prof., Dept. of Biology, UVic
DIMOPOULOS, Nikitas	Prof. & Chair, Electrical & Computer Engineering, UVic
ELTIS, Lindsay	Associate Professor, Microbiology and Immunology, UBC
GRIGLIATTI, Thomas A.	Professor, Department of Zoology, UBC
HOWE, LeAnn	Assistant Professor, Biochemistry, UBC
JAN, Eric	Assistant Professor, Biochemistry and Molecular Biology, UBC
JIA, William	Associate Professor, Surgery, UBC
JEAN, Francois	Assistant Professor, Microbiology and Immunology, UBC
KIEFFER, Tim	Associate Professor, Diabetes Research Group, UBC

LI, Paul	Associate Professor, Chemistry, SFU
MATSUUCHI, Linda	Research Group Leader, Department of Zoology, Cell Biology Group
MAUK, Grant	Professor, Biochemistry and Molecular Biology, UBC
MINCHINTON, Andrew	Senior Scientist, BCCRC
NABI, Ivan Robert	Professor, Cellular & Physiological Sciences, UBC
NUMATA, Masayuki	Assistant Professor, Biochemistry and Molecular Biology, UBC
PLETTNER, Erika	Assoc. Prof., Chemistry, SFU
ROBERGE, Michel	Professor, Biochemistry and Molecular Biology, UBC
SNUTCH, Terry	Professor, Michael Smith Laboratory, UBC
SORENSEN, Poul	Professor, Pathology and Laboratory Medicine, UBC
UPTON, Chris	Assoc. Prof., Biochemistr & Microbiology, UVic
VOCADLO, David	Assistant Professor, Biochemistry and Molecular Biology, SFU
YOUNG, Edgar C.	Assistant Professor, Biochemistry and Molecular Biology, SFU

Division of Drug Design and Synthesis

ABBOTT, Frank	Prof Emeritus, Angiotech Prof, Faculty of Pharmaceutical Sci, UBC
ANDERSEN, Raymond	Professor, Chemistry, Earth and Ocean Sciences, UBC
BENNET, Andrew	Professor and Chair, Chemistry, SFU
BRITTON, Rob	Assistant Professor, Dept of Chemistry, SFU
CIUFOLLINI, Marco	Professor & Canada Research Chair, Chemistry, UBC
DAKE, Gregory	Assistant Professor, Dept Chemistry, UBC
DAVIES, Julian	Emeritus Professor, Dept Microbiology and Immunology, UBC
DOLPHIN, David	QLT/NSERC Professor, Chemistry, UBC
FRANKEL, Adam	Asst Prof and Canada Research Chair, Faculty of Pharmaceut Sci, UBC
HOF, Fraser	Asst. Prof, Chemistry, UVic
JIRASEK, Andrew	Asst. Prof., Dept. of Physics & Astronomy, UVic
LOVE, Jennifer	Assistant Professor, Dept of Chemistry, UBC
MCGILLVARY, Ross	Professor/Director, Biochem & Mol. Biol., Center for Drug Res., UBC
ORVIG, Chris	Professor, Chemistry and Pharmaceutical Sciences, UBC
PERRIN, David M.	Associate Professor, Dept of Chemistry, UBC
PLOURDE, Guy	Associate Professor, Dept Chemistry, U Northern BC
PINTO, Mario	VP Research, SFU
REIMER, Kerry	Associate Professor, Chemistry, UNBC
STRYNADKA, Natalie	Professor, Biochemistry and Molecular Biology, UBC
WILSON, Peter	Associate Professor, Dept of Chemistry, SFU

Division of Drug Delivery

AGNES, George	Associate Professor, Dept of Chemistry, SFU
ALLEN, Theresa M.	Professor, Pharmacology and Oncology, U. Alberta
BIZZOTTO, Dan	Associate Professor, Chemistry, UBC
BOHNE, Cornelia	Professor, Dept. of Chemistry, UVic
BROOKS, Don	Professor, Dept of Pathology and Lab Medicine, UBC
BRUNETTE, Don	Professor, Oral Biological & Medical Sciences, Associate Dean of Research, Faculty of Dentistry, UBC
BURT, Helen	Professor, Faculty of Pharmaceutical Sciences, UBC
CHEUNG, Karen	Assistant Professor, Dept of Electrical and Computer Engineering, UBC
CHIAO, Mu	Associate Professor, Department of Mechanical Engineering, UBC
CULLIS, Pieter	Professor, Biochemistry and Molecular Biology, UBC
DUNCAN, Clive	Professor, Department of Orthopaedics, UBC
DURANCE, Tim	Professor, Food Nutrition & Health, UBC
FERNLAND, Goran	Associate Professor, Materials Engineering (Orthopedics), UBC
FYFE, Colin	Professor, Chemistry (Pathology), UBC
FYLES, Tom	Prof. & Chair, Chemistry, UVic
HAFELI, Ursi	Assistant Professor, Faculty of Pharmaceutical Sciences, UBC
HAMAD, Wadood	Researcher, Paprican, UBC
HAMMOND, Geoffrey	Professor, Obstetrics & Gynecology, Child & Family Res. Inst., UBC
HORE, Dennis	Asst. Prof., Dept. Chemistry, UVic
JAEGER, Nicholas	Professor, Electrical and Computer Engineering & Director of the Centre for Advanced

	Technology in Micro-fabrication, UBC
JEFFERIES, Wilfred	Professor, Biomedical Research Centre, UBC
KIZHAKKEDATHU, Jay N.	Asst Professor, Dept Pathology & Lab Medicine, UBC
KO, Frank	Professor, Advanced Fibrous Materials & Director AMPEL, UBC
LI, Hongbin	Assistant Professor, Chemistry, UBC
MADDEN, John	Assistant Professor, Electrical and Computer Engineering, UBC
MASRI, Bas	Chair of the Sarcoma/Spinal Cancer Surgical Tumour Group, BC Cancer Agency
MEHRKHODAVANDI, Parisa	Assistant Professor, Dept Chemistry, UBC
MOLDAY, Bob	Professor, Biochemistry & Molecular Biology, Director, Centre for Macular Research, UBC
OXLAND, Tom	Professor & Director, Orthopaedic Engineering Research, UBC
PATRICK, Brian	Manager, X-ray Crystallography Services, Chemistry, UBC
RENNIE, Paul	Professor, Director of Lab Research, Prostate Center, VGH
SIGNORELL, Ruth	Associate Professor, Chemistry, UBC
WANG, Rizhi	Assistant Professor, Dept Metals and Materials Engineering, UBC
WASAN, Ellen	Research Scientist, BC Cancer Agency, Division of Advanced Therapeutics
WASAN, Kishor M.	Associate Professor, Faculty of Pharmaceutical Sciences, UBC

Division of Drug Evaluation

BALLY, Marcel	Professor and Head, Advanced Therapeutics, BC Cancer Agency
BANDIERA, Stelvio	Professor, Faculty of Pharmaceutical Sciences, UBC
CHANG, Thomas	Associate Professor, Faculty of Pharmaceutical Sciences, UBC
CHERKASOV, Art	Asst Professor, Dept of Medicine, UBC
EAVES, Allen	Professor and Director, Terry Fox Laboratory, UBC
EAVES, Connie	Professor and Deputy Director, Terry Fox Laboratory, UBC
ENSOM, Mary H. H.	Professor, Faculty of Pharmaceutical Sciences, UBC
KLASA, Richard	Medical Oncologist, BCCA
KUMAR, Ujendra	Assoc Prof, Faculty of Pharmaceutical Sciences, UBC
LASKIN, Janessa	Medical Oncologist, BCCA
LAW, Francis	Professor, Biological Sciences, SFU
LEVINE, Marc	Professor, Faculty of Pharmaceutical Sciences, UBC
MACLEOD, Kathleen	Professor, Faculty of Pharmaceutical Sciences, UBC
MCNEILL, John	Professor Emeritus, Faculty of Pharmaceutical Sciences, UBC
NAUS, Christian	Professor & Head, Cellular & Physiological Sciences, UBC
NG, Sylvia	Senior Research Scientist, Dept Advanced Therapeutics, BCCA
REID, Ronald	Professor, Faculty of Pharmaceutical Sciences, UBC
RIGGS, K. Wayne	Professor, Faculty of Pharmaceutical Sciences, UBC
RODERIGUES, Brian	Professor, Faculty of Pharmaceutical Sciences, UBC
RUTH, Thomas J.	Director, UBC/TRIUMF PET Program
SINDELAR, Robert	Dean, Faculty of Pharmaceutical Sciences, UBC
SOJA, Peter	Professor, Faculty of Pharmaceutical Sciences, UBC
WEBB, John	Adj. Assoc. Prof., Biochemistry & Microbiology, UVic
WONG, Judy M. Y.	Assistant Professor, Faculty of Pharmaceutical Sciences, UBC