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UNDER A CONTRIBUTION FROM THE
NATIONAL RESEARCH COUNCIL OF CANADA

APRIL 1999

The contributions on individual experiments in this report are outlines intended to demonstrate the extent of scientific activity at TRIUMF during the past year. The outlines are not publications and often contain preliminary results not intended, or not yet ready, for publication. Material from these reports should not be reproduced or quoted without permission from the authors.

Appendix E

LIFE SCIENCES PROJECT PROPOSALS

The following lists life sciences project proposals received up to the end of 1998 (missing numbers cover proposals that have been withdrawn or replaced by later versions or rejected or combined with another proposal). Page numbers are given for those experiments which are included in this Annual Report.

Page

LS0. PET facilities [active], K.R. Buckley, E.T. Hurtado *(TRIUMF)*, S. Jivan *(UBC–TRIUMF)* 92

LS1. Attenuation maps for quantitative SPECT [completed], A. Celler *(UBC–VHHSC)*, S. McFarland *(Univ. of British Columbia)*, S. Barney, M. Limber *(Simon Fraser Univ.)*

LS2. Synthesis of ^{18}F-glycosides as potential imaging agents for the study of glycosidase activity in the brain [active], M.J. Adam *(TRIUMF)*, D. Lyster *(Vancouver Hospital & Health Sciences Centre)*, G. Matte *(Saskatoon Hospital)* 93

LS3. Synthesis of radiopharmaceuticals for positron emission tomography [active], M.J. Adam, K.R. Buckley, E.T. Hurtado, J. Huser, S. Jivan, J.-M. Lu, T.J. Ruth *(TRIUMF)* 93

LS4. TR13 targets for PET radioisotope production [active], K. Buckley, T. Hurtado, T.J. Ruth, S.K. Zeisler *(TRIUMF)* 93

LS5. Production and on-line separation of ^{124}I from enriched tellurium [active], W.Z. Gelbart, E.T. Hurtado, T.J. Ruth, N.R. Stevenson, S.K. Zeisler *(TRIUMF)*, R.R. Johnson *(Univ. of British Columbia)*

LS6. Bone calcium resorption studies in pre- and peri-menopausal women using accelerator mass spectrometry [completed], R.R. Johnson, A. Priestman, J.C. Prior *(Univ. of British Columbia)*, A. Altman, W.Z. Gelbart, V. Sossi *(TRIUMF)*, D. Berkovits, S. Ghelberg, M. Paul *(Racah Inst., Hebrew Univ. Jerusalem)*, L.M. Shulman *(Chaim Sheba Med. Centre)*, R. Chechik *(WI)*, E. Venzel *(Simon Fraser Univ.)* 95

LS7. PET 3D data quantification and integration into a research clinical environment [completed], K.S. Morrison, T.J. Ruth, V. Sossi, M.W. Stazyk *(UBC–TRIUMF)*, K.R. Buckley *(TRIUMF)*, J.S. Barney *(Vancouver Hospital & Health Sciences Centre)*, D. Sirota, B.J. Snow *(Univ. of British Columbia)*

LS8. Radiotracers for the physical and biosciences [active], L. Buchmann, T.J. Ruth, S.K. Zeisler *(TRIUMF)*, A.D.M. Glass, R.R. Johnson, M. Lowe, C.E.R. Orvig *(Univ. of British Columbia)*, T.F. Budinger *(Lawrence Berkeley Lab.)* 94

LS10. Biological evaluation of radiohalogenated DNA aptamers [active], H. Dougan *(TRIUMF)*, J.B. Hobbs, D.M. Lyster *(Univ. of British Columbia)*, J.I. Weitz *(McMaster Univ.)* 95

LS11. Development of single photon imaging agents [active], D. Lyster *(UBC–VHHSC)*, L. Alcorn, M. Hampong, T. Lutz, C. Vo *(Univ. of British Columbia)*

LS12. A simulation platform for the design of position encoding multicrystal detectors [completed], A. Altman, C. Moisan, J.G. Rogers *(TRIUMF)*, E. Hoskinson, G. Tsang *(Univ. of British Columbia)*

LS13. Utility of 2-[F-18]-fluoro-2-deoxy-d-glucose SPECT imaging in the evaluation of patients with solitary pulmonary nodules [completed], A. Celler, D. Lyster, D. Worsley *(Univ. of British Columbia)*, M. Adam *(TRIUMF)*

LS14. Production of ^{127}Xe from cesium with 90–110 MeV protons [active], D. Pearce, J. Vincent *(TRIUMF)*

LS15. Investigation of frame realignment on the reproducibility of ^{18}F-6-fluorodopa positron emission tomography [active], K.S. Morrison, T.J. Ruth *(UBC–TRIUMF)*, B.J. Snow *(Univ. of British Columbia)*

LS17. Table-top radiocarbon facility [active], W. Gelbart, R.B. Schubank *(TRIUMF)*, E. Venczel *(UBC–SFU)*, S. Calvert, R.R. Johnson, J. Nagel, T. Peterson, V. Sossi *(Univ. of British Columbia)*, D.E. Nelson *(Simon Fraser Univ.)*, J. Prior, K. Schoenholzer, R. Sutton, V. Walker *(UBC/VHHSC)*, R. Middleton *(Univ. of Pennsylvania)*, M. Paul *(Hebrew Univ. of Jerusalem)*, J. Clague, L. Jackson, J. Lutenauer, D. Templeman-Kluit *(Geological Survey of Canada)*, R.N. McNeely, J.-S. Vincent *(GSC Ottawa)*, V. Barrie *(Pacific Geoscience Center)*, D. Prior, K.R. Robertson, G. Vilks *(Bedford Inst. of Oceanography)*, R. Brown, S. Wang *(Elemental Research Inc.)*, J. Vogel *(Lawrence Livermore National Lab)*, A.E. Litherland *(Univ. of Toronto)*, S. Dias, S. Sood *(Ontario Hydro)*, H.R. Andrews, R.M. Brown, R.J. Cornett *(AECL)*, D.B. Carlisle *(Environment Canada)*, J. Carron, A. Kabir, R.C.J. Wilkinson *(Canadian Centre for Inland Waters)*, R. Gephart, P. Molton, D. Robertson *(Batelle Pacific Northwest Labs)*

LS18. Cooperative development of ^{82}Sr-Rb generators for human use in Canada [completed], J. Vincent *(TRIUMF)*, R. Beanlands *(Univ. of Ottawa Heart Inst.)*, B. Bowen *(McMaster Univ.)*, W. Dickie *(Nordion Int.)*

LS19. An ^{15}O-water generator: a feasibility study [active], K.R. Buckley, T.J. Ruth *(TRIUMF)*

LS20. Prototype heat-pipe water target for ^{18}F-production [active], K.R. Buckley, E.T. Hurtado, T.J. Ruth *(TRIUMF)*, J.W. Lenz *(private consultant)*

LS21. Aluminum kinetics in plants [active], A. Glass, R.R. Johnson, L. Oliveira *(Univ. of British Columbia)*, K. Buckley, Z. Gelbart *(TRIUMF)*, D. Berkovitz, M. Paul *(Hebrew Univ. Jerusalem)*, E. Venczel *(Simon Fraser Univ.)* 95

LS22. Virtual national biomedical tracer facility [active], T.J. Ruth, J.S. Vincent *(TRIUMF)*, E.J. Peterson, D. Phillips *(Los Alamos National Lab)*

LS24. Scanning for early detection and staging of breast cancer: a comparative study using FDG PET and MIBI SPECT [active], P.F. Cohen, P. Klimo *(Lions Gate Hospital–UBC)*, M. Cackette *(Ebco Industries Ltd.)*, J. Whiffen *(JALORN)*, V. Sossi *(TRIUMF–UBC)*, J. Porter *(Nordion Int.)*, R.R. Johnson *(Univ. of British Columbia)* 95

LS25. 3D PET in human neuroreceptor studies: quantification and reconstruction [completed], K.S. Morrison, T. Oakes, T.J. Ruth, V. Sossi *(UBC–TRIUMF)*, K.R. Buckley *(TRIUMF)*, M. Krzywinski, M. Schulzer, J. Stoessl *(Univ. of British Columbia)* 96

LS26. A gaseous planar positron source for routine 3D PET normalization [active], T. Oakes, T.J. Ruth, V. Sossi *(UBC–TRIUMF)*, K. Buckley, S. Jivan, R. MacDonald *(TRIUMF)* 97

LS27. The feasibility and efficacy of using 2-(F-18)-fluoro-2-deoxy-D-glucose (18-FDG) to evaluate children with musculoskeletal neoplasm [active], R. Anderson, J. Davis, D. Lyster, H.R. Nadel, T.J. Ruth, M. Stilwell, D. Worsley *(Univ. of British Columbia)*

LS28. Evaluation of potentially viable myocardium with dobutamine myocardial SPECT imaging [active], H. Abbey, A.-Y. Fung, L. Hook, D.M. Lyster, D.F. Worsley *(Vancouver Hospital & Health Sciences Centre)*, M. Adam, S. Jivan *(TRIUMF)* 97

LS29. Production and distribution of FDG for clinical studies [active], D. Lyster, D. Worsley *(Vancouver Hospital & Health Sciences Centre)*, P. Cohen *(Lions Gate Hospital)*, H. Nadel *(Children's Hospital)*, M.J. Adam, S. Jivan, T.J. Ruth, V. Sossi *(TRIUMF)* 97

LS30. Life Sciences five year plan contribution [active], J.-M. Poutissou, T.J. Ruth, V. Sossi *(TRIUMF)*, L. Robertson *(Univ. of Victoria)* 97

LS31. Auger electron emitters for therapy-physics and chemistry [active], D. Pearce, T.J. Ruth, J. Vincent, A. Zyuzin *(TRIUMF)*, V. Kokhanyuk, V. Kravchuk, B.L. Zhuikov *(INR Moscow)*

LS32. ^{18}F-$H_2{}^{18}$O supply to the University of Alberta [active], S.A. McQuarrie, J.R. Mercer *(Univ. of Alberta)*, A.J.B. McEwan *(CCI)*, R.R. Johnson *(UBC–Ebco)*, T.J. Ruth *(Univ. of British Columbia)*

LS33. Evaluation and improvement of a dual head coincidence camera [active], K.S. Morrison, T.J. Ruth, V. Sossi *(UBC–TRIUMF)*, M. Krzywinski *(Univ. of British Columbia)*, P. Cohen *(Lions Gate Hospital)*, P. Klimo *(Lions Gate Hospital–UBC)*, T.K. Lewellen, D.A. Mankoff *(Univ. of Washington)* 98

LS34. Production of ^{103}Pd [active], R.R. Johnson, R. Pavan *(Univ. of British Columbia)*, M. Cackette, K.L. Erdman *(Ebco Industries Ltd.)*, Z. Gelbart *(TRIUMF)* 95

LS35. Development of F-18 labelled nitroimidazole PET imaging agents for tissue hypoxia [active], M.J. Adam *(TRIUMF)*, K. Skov *(B.C. Cancer Research Centre–UBC)*, S. Evans, C. Koch, A. Kuchera *(Univ. of Pennsylvania)*, I. Baird *(Univ. of British Columbia)* 99