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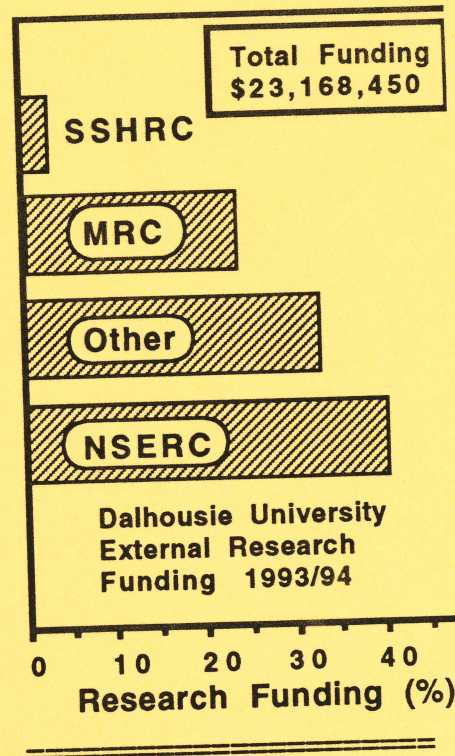
The voice of Dal Dental research

MRC Budget Cut

The Medical Research Council has approved an across-the-board cut of 5% for all current commitments for research grants for 1995/96. The reductions apply to existing grants and will also affect the number and size of future grants awarded. The reduction in the MRC budget is to continue over the next three years with a 7.5% cut in 1996/97 and a further 10% cut in 1997/98. According to a communique released on the 24th March no MRC programmes have been cancelled, but the across-the-board cuts will affect all programmes. The results of the recent competition for MRC Health Professional and PhD Fellowships were extremely disappointing with only 12.5 and 11.5% respectively being funded. The results of the MRC competition for operating grants were also devastating only three dental projects were funded out of 17 submitted, a success rate of less than 18%. In 1993/94 Dalhousie University researchers received almost \$5.5 million in MRC grant funds, the cut back in funding is inevitably going to be reflected in the total MRC funding for 1994/95. The graph below shows the distribution of

research funding obtained from the federal agencies and from other sources by Dalhousie University researchers for the 1993/94 competitions. MRC research funds account for 23% of the total external research funds obtained by Dalhousie researchers in 1993/94. This compares to 40% for the NSERC funding. In addition to the \$23.1 million research funds Dalhousie also received an additional \$3.9 million in research contracts and a further \$9.55 million in international development funding. It is clear that a larger combined university institution in Halifax would be much more competitive, and would provide a greater incentive for collaborative research. In times of declining federal research funding the question of amalgamation of the Halifax university system becomes much more of an urgent issue. Although Dalhousie University with a total of \$36.7 million in external research and development funding is by far the largest research institution in the Maritimes, it is clear that by combining with other institutions researchers in Nova Scotia will be able to gain a larger share of external research grant funding

which will enhance the economy of the region. Research Assistants, Technicians and Graduate Students funded out of research grants, spend their salary on local supplies and services and apartment rents, not to mention giving a boost to provincial and federal tax revenues.



The Last of the Discretionary Funds from MRC

The Medical Research Council has cancelled its General Grant (Dean's Discretionary) research funding to all Dental, Medical and Pharmacy Schools. The 10 Dental Faculties in Canada had previously each received \$15,000 a year as seed funding, the new decision means that this seed money will no longer be available in future for our Faculty members. A tough decision had to be made relating to the current MRC General Grant, (Dean's Discretionary) funding. In evaluating the position of the Faculty Research Discretionary Funding available it has been reluctantly decided to eliminate accounts which contained unspent funds which were over 5 years old. These research funds had been set up for specific research projects supported by discretionary funding, in most cases these research projects have long since been completed or abandoned. These accounts which were set up for specific research projects date back in some cases at least 10 years. By combining the small amounts in the various inactive accounts it has been possible to make available a further small amount of additional "MRC Discretionary Seed" funding to support active researchers in proposed or ongoing research projects. Due to the recent termination of the Discretionary funds (General Research Grant) by MRC, a decision was made to call back all such internal discretionary funds which had been placed into small individual project accounts and remained unspent during the past 5 to 10 years (note: those funds which were less than 5 years old were not recalled). The recalled funding totalling \$4,700.59

which together with a further amount of \$ 1,509.76 remaining from the previous MRC allocation has now been consolidated in a central fund in the Dean's Office. This total of \$6,210.35 is available in free and open peer reviewed competition for all faculty members to apply for research support. In addition a further significantly larger amount of funding is also available from the Alumni sources for support of clinically related research.

The MRC strongly supported and approved of this action to free up Discretionary General Grant funding which has previously been isolated and unavailable for 5 to 10 years. The process was aimed to get the small amount of our remaining MRC General Grant discretionary funding back into circulation to support ongoing research. Those individuals who have had funds recalled have the option of submitting a new application for peer review to support further research from these funds. The MRC General Grant (Discretionary funding) was intended for the support and promotion of research as short-term seed money not as long-term 5-10 year support. The MRC Guide-lines for the General funds stated that such funds were to be used, as far as possible, during the year in which it was awarded. Over 10 years ago in 1984 the MRC informed Dalhousie Faculty of Dentistry that they were going to call back the Dean's MRC Discretionary funding due to the fact that it had not been spent for several years to stimulate research as intended. Nobody likes making tough decisions, however, sometimes we have no choice. When John Savage clawed back 3% from the salaries of all public sector employees in Nova Scotia, nobody liked it, but it was felt

that it was fair since it affected every public sector employee. Not all of the individuals who had MRC funding between 5 and 10 years ago would be happy that the MRC Discretionary funding has been recalled, however, it was considered fair to all, since it was based upon a date of 5 years being applied, rather than by targeting selected projects. The provision of the additional funding which has been freed up will help to stimulate research activity within the Faculty. Those faculty members who had funding recalled under the above action do have the option of reaffirming their commitment to research by forwarding an updated new proposal with a specific budget. These applications can be forwarded not only for the MRC discretionary funding, but for the additional Alumni funding for clinically related research. Faculty members wishing to apply for the last of the MRC discretionary funding should make application to the Assistant Dean (Research) for review by the Research Development Committee. A **detailed budget** is essential for these applications. A clear, concise outline of the research proposal, including the **rationale** for the choice of particular methods and approaches should be provided. The **objective(s)** and **research plan** should be described. This outline should take the form of a concise summary of the current state of knowledge relating to the work proposed. All applications involving human and/or animal studies must be accompanied by verification that application has been made to the appropriate ethics or animal protocol committee and that they have received or are awaiting the required approval.

Congratulations Song.

Dr. Song Lee, Department of Oral Biology has had a paper accepted for presentation at the International (IADR) Dental Research Meeting being held in Singapore in June 1995. The title is:

Detachment of *Streptococcus mutans* biofilm cells by an endogenous enzymatic activity. S.F. LEE*, Y.H. LI, and G.H. BOWDEN (Dalhousie Univ., and Univ. of Manitoba.

Abstract

Previous studies have shown that *Streptococcus mutans* possesses an endogenous surface proteins-releasing enzyme (SPRE) activity that releases its own surface proteins. This study is to investigate the possible role of surface proteins release by *S. mutans* in the detachment of cells adhered to a surface. *S. mutans* BM71 biofilm cells (monolayer) were formed on hydroxylapatite rods in a modified chemostat. The detachment of the biofilm cells was studied. The results showed that biofilm cells were detached at a maximum rate at pH 5 to 6, values similar to the optimal pH for surface protein release. The detachment of biofilm cells was found to be inhibited by Zn^{2+} , a chemical also inhibited surface protein release. The rate of detachment could be increased by the addition of a *S. mutans* SPRE enzyme preparation but not the heat-killed SPRE, or SPRE in the presence of Zn^{2+} . The detachment of biofilms formed from resting (viable not dividing) *S. mutans* cells showed similar results to those when growing biofilms were used. The above results suggest that the detachment of a monolayer *S. mutans* biofilm cells was due to an endogenous enzymatic activity. This process of enzymatic detachment may

play an important role in the colonization of teeth by *S. mutans*. This study was supported by a grant (MT-11580) from the Medical Research Council of Canada.

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Eighth Anniversary

This issue of the Dental Research News marks the 8th Year of the Research Development Office. This is the 85th issue of the Dental research News which has been published continually since September 1987. The number of pages produced since the very first issue including this April 1995 issue is 632.

During the past 8 years the significant research progress made by our Faculty of Dentistry has been reported and recorded for posterity in the DRN. Our Faculty's success in research grant funding and the record number of research presentations at international meetings have been outstanding for such a small Faculty.

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Faculty Research Milestones During the Past Eight Years.

- 1987 Dental Research Development Office established.
- 1988 First MRC Programme Grant obtained.
- 1988 Total of federal research funding obtained passes \$ 1 million.
- 1988 First IADR Distinguished Scientist Award for Dalhousie University.
- 1988 Appointment of first professional epidemiologist in the faculty.
- 1989 100th IADR Abstract paper presented.

1990 First Canadian award of the David B. Scott IADR Student Scholarship.

1991 Total of federal research funding obtained passes \$ 2 million.

1991 150th IADR Abstract paper presented.

1991 First MRC Development Grant obtained.

1991 Establishment of First Microbiology Research Laboratory.

1992 Total of federal research funding obtained passes \$ 3 million.

1992 First Dalhousie President of CADR.

1992 200th IADR Abstract paper presented.

1992 First MRC University/- Industry Grant obtained.

1992 Record presentation of 35 abstracts at a single meeting of IADR.

1993 First University/Industry Chair in Biomaterials obtained.

1993 The 225th Dalhousie IADR Abstract paper presented.

1994 The establishment of the Clinical Research Unit.

1995 First Clinical Research Day held on April 12 1995

We can only hope that the next 8 years will be as productive. However, the economic climate for research is not good, the loss of the MRC Discretionary funding and the cut back in the level of federal research funding in general does not provide a rosy future for the support of biomedical research.

Originality

"Everything has been thought of before, but the problem is to think of it again."

Johann W. von Goeth

A Solution to Declining Research Funds

In the difficult times of constraint of research grant funds a larger combined Metro university institution could provide a much greater competitive edge for local researchers. A larger institution could provide opportunities to develop innovative research strategies which would ensure that the institution grows in stature and achieves the level of research excellence, which can maintain a truly National University, with an international reputation.

It is a fact of life that in Canada, the larger university institutions tend to dominate the acquisition of research funding from the federal granting agencies. A larger Halifax institution would undoubtedly be very much more competitive in securing federal research funding as well as commercial industrial support in competition with other institutions such as UBC and Toronto. A larger institution would have a significantly more vigorous and stronger research presence in Canada compared to the fragmented system presently existing in Nova Scotia. It is important to note that the \$36.7 million in external research and development funding brought into the province from outside by Dalhousie University researchers represents a major contribution to the economy of the Halifax, Dartmouth region.

A larger institution would be able to develop policies which would be attractive for the recruitment of new faculty, the lifeblood of any university. A larger institution would encourage the retention of the high quality faculty members

with international reputations who may otherwise be tempted to depart.

A larger institution in Halifax would allow greater innovation in the design of graduate programs which would permit the institution to maintain and improve its role as a leading academic research institution in the 21st century.

The fragmented university system combined with a lack of Provincial support for research in Nova Scotia, clearly places our researchers at a distinct disadvantage. Researchers from British Columbia, Alberta, Ontario and Quebec have a very distinct advantage based upon the size of their institutions as well as the provincial funding which provides them with significant amounts of seed money giving them a flying start in the very competitive MRC, NHRDP and NSERC funding competitions. A larger Halifax institution would be able to compete much more effectively with the competition across Canada. As stated above research funding is a very important component in the economy of the region. The acquisition of research funds by researchers at our universities represents a unique and special form of transfer payments into the province. However, this research also has the potential for spin-off of industrial activity which would be possible for many areas of research through the new crown corporation InNOVAcorp. A larger Halifax institution may well be able to convince the provincial government to allocate some seed funding to support university based research. Such seed funding would be repaid five times over in the acquisition of additional external research funds by the larger institution.

With the right leadership the synergistic effect of combining three universities, St. Mary's, TUNS and Dalhousie could produce an explosion of collaborative research effort which would be a powerful stimulant to the economy in the region.

One example in the Faculties of Medicine and Dentistry which has been highlighted is that of biomaterials and biomechanics which would flourish in a powerful combined DAL-TUNS link-up. The area of medical devices ~~is~~ is an important sector of the economy with an aging population. Biomaterials are vital to all medical device applications, since they must come into contact with living tissues, either short-term or long-term. Recent figures from the U. S. Health Care Technology Institute in 1994 indicated that a total of \$54.3 billion medical devices were produced in the U. S. in 1994. The industry in the U. S. had a \$10.1 billion payroll in 1993. This industry created \$4.3 billion in federal taxes for the U. S. economy. In 1994 it was estimated that some 11 million of the U. S. population have devices implanted, 50% of these were musculoskeletal. A total of some 400,000 total hip joint implants, 113,000 pacemakers and leads, and some 63,000 heart valves were implanted in the U. S. in 1993. The U. S. FDA indicated that there were some 11,350 registered medical device manufacturers in 1994. The importance of biomaterials research and development to the medical device industry is substantial. The fact that Canada imports 80% of all our biomedical device and biomaterial needs emphasizes the importance of this area to the Canadian economy.

Dalhousie Makes an Impact

The slogan in San Antonio should have been, "Remember Dalhousie" not "Remember the Alamo." A total of 19 papers carrying Dalhousie's name were presented. In addition to the 12 papers presented at the AADR/CADR meeting in San Antonio, a further seven papers were also presented by Dalhousie Faculty and staff at the American Association of Dental Schools meeting held in conjunction with the AADR/CADR meeting. One paper at the AADR/CADR meeting was presented by Darryl Smith one of our second year DDS students. The Dental Research News omitted to mention Darryl in the report published in the March issue. Sorry Darryl please accept the apology from the editor. The four students Darryl Smith, Katrina Sawler, Paul Hurley and Paul Miller who presented papers at the AADR/CADR meeting gave an excellent account of themselves. The theme for the 72nd AADS meeting was "Celebrating Diversity in Education and Science." The following seven papers were presented at the AADS meeting; "A Code of Ethics vs The Expectations of Society." by Nancy Neish and Brenda Fortune, "Early Clinical Experiences: A New Programme for First Year Dental students." by Felicity Hardwick and Helen Lyttle, "Job Description of Integrated Courses." Nancy Webb, Tom Boran and Don Cunningham. "Cooperative Learning in a Dental Biomaterials Science Course." by Elliott Sutow *et. al.* "Student Table Clinics: Scholarship Across the Dental Curriculum." by Richard Price, *et. al.* "Predictive Value of

Admissions Test for Third Year Dentistry Performance." by Doug Chaytor and Joe Murphy. "Survey of Dalhousie Dental Hygiene Graduate Satisfaction with Periodontal Curriculum." by Joanne Clovis, Noel Andrews and Jocelyn Burke. The San Antonio meetings provided a rewarding experience for the Dalhousie participants.

Do You Need Research Information?

An important library service is now available on a trial period for one year. Journal articles in the biomedical sciences in journals which are not carried by our own library can be obtained in a hurry within three working days from the Kellogg Health Sciences Library. This service is offered through a collaborative arrangement with 16 other Canadian health science libraries. A charge of \$5 per article is made. For further information contact the *Kellogg Health Sciences Library at 494-2469.*

Bazaar Arrangement

"Once upon a time academicians displayed their intellectual wares in an archival bazaar where everyone could browse and where anyone who thought he or she could commercialize an idea was free to try. But for government-funded academicians to engage in research collaborations with industrial counterparts was rare."

William Raub,
(former Director NIH)

Words of Wisdom

"We can be knowledgeable with other men's knowledge, but we cannot be wise with other men's wisdom." Michel de Montaigne 1533-1592.

The Biotechnology Revolution

"It changed with the emergence of biotech companies whose senior scientists acted like professors- while their counterparts on university campuses acted like entrepreneurs." Harald Løe

Use of Scientific Knowledge

"Fundamental scientific knowledge is one of America's most effective forms of foreign aid. Unfortunately, it is foreign aid to our strongest rivals. Japan's experience shows that it is possible to succeed technologically while relying on others for fundamental knowledge and new ideas. Instead of rushing off to blindly imitate Japanese methods, we might formulate better ways of directing and utilizing our own research. We must make certain we put our scientific knowledge to use more quickly than others do."

Dr. Roland Schmidt
(former Vice-President of Research at General Electric- now with Rensselaer University.)

Common Interest

"Whatever we do in science is ultimately in the context of society; whatever we do in biomedical research must be in the interest of the public."

Dr. Bernadine Healy.

Discovery

"The most remarkable discovery made by scientists is science itself. The discovery must be compared in importance with the invention of cave-painting and of writing."

Jacob Bronowski.