



Department of Molecular and
Cellular Biochemistry

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March 22, 2009

W. Randy Smith, Ph.D.
Vice Provost for Academic Affairs
The Ohio State University

RE: Proposal to Establish the Center for RNA Biology

Dear Randy,

On behalf of the faculty, the RNA Steering Committee, and our lead dean, Dr. Matthew Platz, I submit our proposal to establish the Center for RNA Biology as a formal University Center. We hope the timing of this submission will enable the review process to be completed in time for the June meeting of the Board of Trustees so as to become formally recognized with the start of the next fiscal year.

Sincerely,

A handwritten signature in cursive script that reads "Dan Schoenberg".

Daniel R. Schoenberg, Ph.D.
Professor, Molecular & Cellular Biochemistry
Director, Center for RNA Biology

Revised July 14, 2011

**Proposal to Establish
The Ohio State University
Center for RNA Biology**



Proposal to Establish The Ohio State University Center for RNA Biology

Introduction

RNA biology represents a unifying concept throughout the life sciences, and RNA plays fundamental roles in medicine, infectious disease, industry and agriculture. The Ohio State University Center for RNA Biology consists of 31 faculty from 7 different colleges, and is the largest single group of RNA researchers in the country. The Center faculty bring worldwide recognition to The Ohio State University through their roles as organizers and invited speakers at major national and international conferences, leadership positions in scientific societies, membership on editorial boards and service on NSF and NIH review panels.

I. Mission

The mission of the Center for RNA Biology is to advance life sciences research and education at The Ohio State University and throughout the State of Ohio by:

- Building on existing strengths in RNA biology
- Developing new synergies through interdisciplinary initiatives and outreach
- Serving as a point of pride to attract and retain outstanding faculty
- Bringing the best graduate student and postdoctoral scholars from throughout the world to Ohio State.

This mission addresses each of the Six Strategic Goals of The Ohio State University:

Forge One Ohio State University

The faculty of the Center for RNA Biology represent 14 departments in 7 colleges that come together through their shared interest in and recognition of the importance of RNA biology in all aspects of the life sciences.

Put Students First

Training of the next generation of RNA scientists is a key aspect of the Center. The Center faculty have created graduate courses in RNA biochemistry and molecular biology that are among the most popular in the life sciences. The Center is the focal point for an NIH training grant application in Cellular and Molecular Biology, and RNA biology is a core area of a Howard Hughes Med-into-Grad training grant. The annual Rustbelt RNA Meeting is a product of the Center faculty. This regional meeting brings together RNA researchers from throughout the Midwest, and showcases research by undergraduate and graduate students, and postdoctoral trainees. The overwhelming majority of the presentations are by trainees, with faculty serving a support role. Active fund raising and an NSF meeting grant that has been continuously funded since 1999 underwrite the cost, making attendance possible for every student who applies. This meeting began in 1998 with 67 attendees, and now attracts 250 participants. The monthly Center seminar program brings internationally renowned RNA scientists to Ohio State and facilitates student interactions with these guests by providing lunch after each presentation.

Focus on Faculty Success

Faculty development is a major goal of the Center. The concentration of experienced and talented scientists stimulates new ideas and leads to new initiatives. The professional development of junior faculty is enhanced by these interactions, and all interactions between faculty and students will be enhanced by bringing as many of the member labs together in a single location. The under-representation of women in the upper faculty ranks is a nationwide

problem, and increasing their ranks is a key mission of the Center. Of the eight female faculty in the Center, 6 are senior and 2 are junior. Bringing the junior faculty members together with their successful senior colleagues will facilitate the mentoring and career development of junior women faculty.

Recast Our Research Agenda

Collaboration and interdisciplinary research are among the founding principles of the Center for RNA Biology. As the focal point for RNA research at Ohio State, the Center will facilitate collaborative interactions and research across the physical and life sciences.

Commit to Our Communities

The Center for RNA Biology will nurture discovery and develop an educated workforce that will bring new industries and jobs to the State of Ohio. This is facilitated by our partnership with BioOhio in developing internship programs for graduate students. By bringing together RNA scientists from different disciplines, the Center provides a resource for the biotechnology industry throughout the state.

Simplify University Systems and Structures

RNA researchers at Ohio State are spread throughout the campus, making it challenging to identify expertise and to locate specialized instrumentation. The Center simplifies this by providing a focal point for RNA science and education. Moreover, one aspect of the Center will be a state-of-the-art instrumentation core, whose location within the life sciences corridor on 12th Avenue will provide long-term cost savings and accelerate discovery.

Goals:

To accomplish the mission of the Center for RNA Biology we established the following goals:

1. To promote training of the next generation of RNA scientists.
2. To create a strong educational curriculum focusing on cutting edge science.
3. To create a 'center of excellence' that will attract and retain outstanding faculty.
4. To attract outstanding graduate student and postdoctoral trainees to The Ohio State University.
5. To establish campus-wide interdisciplinary collaborations.
6. To provide consultation for the University and across the State of Ohio in all areas of RNA biology.
7. To establish links with Ohio's biotechnology community.
8. To provide a platform to compete for federal funding for training and interdisciplinary research.

The breadth of interaction and expertise of the Center faculty is unique, and no single academic unit addresses the educational and research goals of the Center for RNA Biology. A Center for RNA Biology will bring international recognition to Ohio State University, and will serve as a point of pride for the entire state.

II. Faculty

Faculty interest in the Center for RNA Biology is high. The concept establishing a Center for RNA Biology developed with the growth of the informal 'RNA Group.' The RNA Group began in the mid-1990s as informal meetings involving the few RNA research labs on campus. Over the years the success of these faculty attracted others interested in RNA biology to Ohio State. Ultimately the decision to apply for Center status came with the international recognition of Ohio State as a leading institution in RNA research, the awarding of the National Academy of

Sciences medal for molecular biology to Dr. Tina Henkin, and the recruitment of Dr. Anita Hopper as Chair of the Department of Molecular Genetics and Dr. Karin Musier-Forsyth as Eminent Scholar in the Department of Chemistry.

A. Criteria for selection of faculty membership

Members of the Center for RNA Biology are selected from throughout the University through their expressed interest in participating in the Center. Membership requires that the following general requirements be met:

- 1) Members must be involved in research and/or education that are broadly related to RNA as a target or tool in basic, applied, clinical or translational investigation.
- 2) Members must be willing to participate in Center activities, such as educational and scientific programs, administrative committees, fund raising, and interactions with other elements of the University.

The following criteria define the categories of membership in the Center for RNA Biology:

Full member

- Full members must be on the faculty of The Ohio State University and be actively involved in basic, applied, clinical or translational research in RNA biology.
- Full members should be principal investigator on an extramurally funded grant or a principal investigator of an individual project within a larger program project grant.
- New faculty who are establishing their research programs.

Student/postdoc member

The laboratory staff of Center members is eligible for Assistant member status. Assistant members are:

- Post-graduate fellows or trainees of a Full member at The Ohio State University.
- Post-graduate fellows or trainees at The Ohio State University with an interest in RNA Biology upon nomination by a Center member.
- Graduate or medical students at The Ohio State University upon nomination by a Center member.
- Professional staff of a Center member.

External members

- Individuals actively involved in basic, applied, clinical or translational research in RNA biology that are not primarily affiliated with The Ohio State University. Appointment to this category requires nomination by a Center member. While external members may participate in seminars and other Center activities, they are not eligible to receive financial benefits, such as support for meeting attendance.

B. Faculty expressing interest in associating with the Center:

The following faculty members have expressed interest in membership in the Center for RNA Biology. A complete listing including departmental and college affiliations and contact information is provided in Appendix 1.

Juan Alfonzo, Ph.D. <i>Microbiology</i>	Charles Daniels, Ph.D. <i>Microbiology</i>	Jane Jackman, Ph.D. <i>Biochemistry</i>
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Irina Artsimovitch, Ph.D. <i>Microbiology</i>	Biao Ding, Ph.D. <i>Plant Cell Mol. Biology</i>	JC Jang, Ph.D. <i>Horticulture & Crop Science</i>
Daniel Battle, Ph.D. <i>Mol. Cell Biochemistry</i>	Mark Foster, Ph.D. <i>Biochemistry</i>	Stephen Kolb, M.D., Ph.D. <i>Neurology</i>
Amanda Bird, Ph.D. <i>Human Nutrition</i>	Kurt Fredrick, Ph.D. <i>Microbiology</i>	Joseph Krzycki, Ph.D. <i>Microbiology</i>
Kathleen Boris-Lawrie, Ph.D. <i>Veterinary Bioscience</i>	Venkat Gopalan, Ph.D. <i>Biochemistry</i>	Jianrong Li, Ph.D. <i>Food Science</i>
Ralf Bundschuh, Ph.D. <i>Physics</i>	Patrick Green, Ph.D. <i>Veterinary Bioscience</i>	Karin Musier-Forsyth, Ph.D. <i>Chemistry</i>
Dawn Chandler, Ph.D. <i>Pediatrics</i>	Tina Henkin, Ph.D. <i>Microbiology</i>	Danielo Perotti, M.D., Ph.D. <i>MIVMG</i>
R. Keith Slotkin, Ph.D. <i>Molecular Genetics</i>	Anita Hopper, Ph.D. <i>Molecular Genetics</i>	Daniel Schoenberg, Ph.D. <i>Mol. Cell Biochemistry</i>
James Cowan, Ph.D. <i>Chemistry</i>	Michael Ibba, Ph.D. <i>Microbiology</i>	Robin Wharton, Ph.D. <i>Molecular Genetics</i>
Robert Munson, Ph.D. <i>Pediatrics</i>	Paul Herman, Ph.D. <i>Molecular Genetics</i>	Tom Santangelo, Ph.D. <i>Microbiology</i>
David Bisaro, Ph.D. <i>Molecular Genetics</i>		

C. Student/Staff Involvement

All undergraduate students, graduate students, and postdoctoral research associates in laboratories associated with the RNA Center will benefit from attending all RNA Center activities, including monthly meetings, sponsored seminars, and other research meetings. Monthly Center meetings will include presentations by graduate students and postdocs. Participation in the highly trainee-centered annual Rustbelt RNA meeting will be strongly encouraged. The goal is to continue to build a strong sense of community among the students and postdocs, and to increase sharing of technical expertise both among RNA Center laboratories and with laboratories outside the Center. As part of this goal, the Center will also encourage co-mentoring of students by multiple RNA Center PI's. Lastly, fellowship support for exceptional graduate students will be available through the Center, and the Center will provide support for 6 undergraduate students to work during the summer in member labs.

Review Procedures

Full memberships are effective upon approval by the Director and a majority vote of the RNA Steering Committee. The Director and the RNA Steering Committee will annually review the participation of each member in Center activities. A consistent lack of involvement will generate a communication to this effect from the Director, and after one year of inactivity loss of Center membership.

III. Administration

A. Director

Daniel R. Schoenberg, Ph.D., Professor of Molecular and Cellular Biochemistry

B. Responsibilities of the Director

The Director will oversee all aspects of Center operation. He/she will:

- a) Develop an annual budget in consultation with the lead Dean
- b) Establish and implement a sound fiscal policy
- c) Oversee the function of the Center office
- d) Coordinate the activities of the Center
- e) Represent the Center within the University community and to the greater scientific community
- f) Implement policy decisions made in consultation with the RNA Steering Committee
- g) Facilitate the professional development of graduate students, postdoctoral fellows and junior faculty within the Center

C. Composition and function of the oversight committee

The composition of the RNA Steering Committee should in general reflect the various research interest areas of the Center as a whole. Recommendations for membership on the RNA Steering Committee are made by the Director to the Committee, with the selection determined by the majority vote of the Director and Committee.

The RNA Steering Committee will work with the Director to:

- a) Develop and implement Center policy
- b) Develop and administer the educational and scientific programs
- c) Engage in outreach within the University community and with the greater scientific community
- d) Implement the Center seminar program
- e) Implement and administer an undergraduate summer program in RNA biology
- f) Perform annual evaluations of the Center membership
- g) Mentor junior faculty and facilitate the professional development of graduate students, postdoctoral fellows
- h) Carry out annual reviews of the performance of the Center

The current members of the RNA Steering Committee are:

Dr. Juan Alfonzo, Associate Professor, Microbiology, CBS
Dr. Kathleen Boris-Lawrie, Professor, Veterinary Biosciences, Veterinary Medicine
Dr. Ralf Bundschuh, Associate Professor, Physics, MAPS
Dr. Tina Henkin, Professor, Microbiology, CBS
Dr. Anita Hopper, Professor and Chair, Molecular Genetics, CBS
Dr. Karin Musier-Forsyth, Professor, Chemistry and Biochemistry, MAPS and CBS

Administrative staffing will consist of the Director and a part-time assistant. The administrator will handle the day-to-day operation of the center, handle budgetary matters, arrange meetings, and participate in obtaining funding. The part-time assistant will handle smaller tasks, such as escorting invited guests, photocopying, and arranging food for the monthly meetings.

D. Reporting line

The Director will report immediately to the Dean of the College of Natural and Mathematical Sciences, who in turn will convene a committee that includes the Dean of the College of Medicine and the Vice President for Research.

E. Components of the Patterns of Administration

Director and RNA Steering Committee

The roles of the Director and the RNA Steering Committee in administering the Center are detailed in A-C.

External Advisory Board

The External Advisory Board shall be composed of 3-5 experienced nationally recognized experts in RNA research outside of The Ohio State University. The External Advisory Board will evaluate the Center and its Director(s) every four years. Because many of the Center members are participants in the NIH T32 Molecular and Cellular Biology training grant individuals with RNA expertise on the External Advisory Board of that training grant will also serve as the External Advisory Board of the Center. This will handle the needs for 5 years beginning July 2011, after which the nature and composition of the External Advisory Board will be re-evaluated.

IV. Budget/Funding

A. Income

The budget for the Center for FY2012-FY2015 is presented in the attached Memorandum of Understanding dated May 18, 2011. The Colleges of Natural and Mathematical Sciences and Medicine and the Office of Research each provide \$13,333 toward an annual operating budget of \$40,000. The College of Medicine provides an additional \$10,000 as a salary supplement to Dr. Schoenberg as Director. The two Colleges also provide support for graduate fellowships. These are detailed below and are maintained as separate accounts. As per the MOU this funding model will be reviewed after the first three years of operation and adjustments made as needed.

B. Operating expenses

The operating expenses and fellowship expenses are maintained in separate accounts. Details of the annual expenditures are:

- 1) Office assistant (shared with Molecular and Cellular Biochemistry, \$9,000)
- 2) Office operating expenses (\$2,000)
- 3) Web site = (\$500)
- 4) Seminar program = (\$20,000 - 10 X \$2000 per speaker including travel, hotel, honorarium). This is approximate. The RNA Fellows invite one highly-visible guest each year. The expenses for this are greater than the others because of higher honorarium and meal costs.
- 5) Contribution to the annual Midwest (Rustbelt) RNA meeting (\$5000)
- 6) Fringe benefits with Director salary supplement (\$2500)

C. Fellowship program

The RNA Fellows program is a hallmark of the Center for RNA Biology. These are one-year fellowships that support 2 outstanding graduate students from the College of Natural and

Mathematical Sciences and 1 from the College of Medicine (see funding mechanism below). The students are selected in a competition that is overseen by Dr. Musier-Forsyth. The funding for these is as follows:

College of Medicine: \$40,000 for stipend, tuition and fees.

College of Natural and Mathematical Sciences: \$80,000 (maximum), payment is based on the actual expenses with transfers made at the end of each fiscal year.

Each of the RNA Fellows must document their accomplishments during their year of support and present their work to the entire Center membership in the January or February meeting.

D. Facilities

The Center currently has an office in room 212 Aronoff Laboratory. Centralized laboratory space for is a long-term goal that was submitted as part of the Strategic Plan in 2008. Ideally this will be on research-intensive 12th Avenue corridor.

E. Sustainability of the Center, possibilities for outside funding, details of related funding proposal submissions

The sustainability of the Center as a financially viable entity is evidenced by the grant support garnered by the Center faculty. The FY2011 annual total costs (direct + indirect) for the 32 member labs was over \$13M, with nearly all of these funds from federal agencies (NIH, NSF) that provide full indirect costs. The Center has already demonstrated an ability to secure training grant funding with acquisition of the Howard Hughes Med-into-Grad grant in 2010 and an NIH T32 training grant in 2011. Any long-term funding model should involve some form of support based on indirect costs that should be established through memoranda of understanding between the stakeholder Deans and the Office of Research.

External and related funding proposals:

The following companies have made annual contributions to the RNA Development Fund in support of Center activities:

Sigma-Aldrich, Inc.
Fisher Scientific
Thermo/Dharmacon

V. Evaluative Criteria and Benchmarks

The Center has already proven its usefulness in the international recognition of Ohio State as a leader in RNA research. Moreover, a number of Center members have received comments on summary statements from NIH review panels noting the outstanding research environment made possible by the Center.

Criteria for evaluation of the success of the Center for RNA Biology will include:

- a. Maintain and increased funding of Center members, resulting in increased cost recovery by the Center
- b. Increased number of publications (both total and high impact publications)

- c. Increased number of grant applications and publications that reflect collaborative work between Center members and collaborations between Center members and investigators outside the Center
- d. Increased number of invited meeting presentations by Center members
- e. Increased number of honors and awards for Center members and students and postdoctoral researchers in member labs.
- f. Improvements in student and postdoc training, measured by decreased time to graduation for graduate students, increased numbers of publications and research presentations, and successful job placement after graduation

Benchmarks:

In the current challenging funding environment success will be measured by maintaining the current level of aggregate grant funding or increase this by 10% over the next 3 years. For criteria b-d, the expectation is that performance in each of these categories will increase 5% per year (standardized per numbers of full members of the Center). For Criteria e and f, there is no specific numerical target, but steady improvement will be monitored.

Evaluation:

The RNA Steering Committee in consultation with the External Reviewers will carry out an evaluation six months prior to the end of the current MOU period. Progress will be measured relative to the criteria and benchmarks listed above. This will coincide with the end of the 3 year funding cycle, at which time the RNA Steering Committee will prepare a report documenting progress during that period. This report will form the basis for potential adjustments to the Center policy and structure, and will provide a framework for the future funding model. The report will be provided to the Lead Dean, to all other supporting Deans, and to the External Reviewers.

VI. Supporting Materials

A. Letters of support from Departmental Chairs, Deans and Center Directors within the University – Each of the Chairs, Deans and Center Directors whose faculty are impacted by the creation of the Center were asked to provide letters of support. These are provided in the indicated appendices.

Chairs – Appendix 3	Deans – Appendix 4	Center Directors – Appendix 5
John Reeve, Ph.D., Microbiology	Matthew Platz, Ph.D. Biological Sciences and Math and Physical Sciences	Michael Caligiuri, M.D. Comprehensive Cancer Center
Michael Chan, Ph.D. Biochemistry	Chip Souba, M.D., Ph.D. Medicine	Larry Schlessinger, M.D. Center for Microbial Interface Biology
Anita Hopper, Ph.D. Molecular Genetics	John Hubbell, D.V.M. Veterinary Medicine	Patrick Green, Ph.D. Center for Retroviral Research
Randy Scholl, Ph.D.	Bobby D. Moser	

Plant Cell and Molecular Biology	Food, Agriculture and Environmental Science	
		Vice President for Research
Michael Ostrowski, Ph.D. Molecular and Cellular Biochemistry	Cheryl Achterberg, Ph.D. Education and Human Ecology	Caroline Whitacre, Ph.D.
Michael Racke, M.D. Neurology		
James Kinder, Ph.D. Human Nutrition		
Denise Smith, Ph.D. Food Science		
Bill Randle, Ph.D. Horticulture and Crop Science		
Malcolm Chisholm, Ph.D. Chemistry		
James Beatty, Ph.D. Physics		
Michael Lairmore, D.V.M., Ph.D. Veterinary Biosciences		

B. Letters of support from academic parties outside the University – Appendix 6

Heads of Centers with similar emphasis:

Timothy Nilsen, Ph.D., Director
Center for RNA Molecular Biology
Case Western Reserve University

Lynne Maquat, Ph.D., Director
Center for RNA Biology; from Genome to Medicine
University of Rochester

Harry Noller, Ph.D., Director
Center for RNA Molecular Biology
University of California, Santa Cruz

Michael Culbertson, Ph.D., Chair
Laboratory of Genetics
University of Wisconsin

Interested parties representing concentrations of RNA researchers across Ohio:

Paul Fox, Ph.D.
Lerner Research Institute
Cleveland Clinic

Jennifer Hines, Ph.D.
Department of Chemistry and Biochemistry
Ohio University

Patrick Limbach, Ph.D.
Department of Chemistry
University of Cincinnati

C. Letters of support from companies - Appendix 7

William Tacon, Ph.D.
Senior Director, Workforce & Education
BioOhio

Barbara L. Kunz
President
Battelle Health & Life Sciences Global Business

Patrick Sullivan
Vice President
Sigma Life Science Research and Development
Sigma-Aldrich, Inc.

Adel Mikhail, Ph.D.
Founder and CEO
Phylogeny, Inc.

Summary: RNA research is an interdisciplinary endeavor, spanning biology, medicine, agriculture, mathematics, physics and chemistry. The Ohio State University is one of the few institutions in the world with a high concentration of internationally-recognized experts in RNA, and the establishment of the Center for RNA Biology will cement the University's reputation as a leader in this field. In turn, this will attract the best faculty, students and postdoctoral scholars and enhance all of the life and physical sciences at The Ohio State University.

Appendix 1

Faculty of the Center for RNA Biology and their Affiliations

Appendix 1 – Faculty of the Center for RNA Biology and their affiliations

Faculty member	Department	College	email
Alfonzo, Juan	Microbiology	CBS	alfonzo.1@osu.edu
Artsimovitch, Irina	Microbiology	CBS	artsimovitch.1@osu.edu
Battle, Dan	MC Biochem	Medicine	battle.59@osu.edu
Bird, Amanda	Nutrition/Mol Gen	Education & Human Ecology	bird.96@osu.edu
Boris-Lawrie, Kathy	Vet Biosci	Veterinary Medicine	Kathleen.Boris-Lawrie@cvm.osu.edu
Bunds Schuh, Ralf	Physics	MAPS	bunds Schuh.2@osu.edu
Chandler, Dawn	Pediatrics	Medicine	Dawn.Chandler@nationwidechildrens.org
Chang, Tien-Hsien	Mol Gen	CBS	chang.108@osu.edu
Cowan, James	Chemistry	MAPS	cowan.2@osu.edu
Daniels, Chuck	Microbiology	CBS	daniels.7@osu.edu
Ding, Biao	PCMB	CBS	ding.35@osu.edu
Foster, Mark	Biochemistry	CBS	foster.281@osu.edu
Fredrick, Kurt	Microbiology	CBS	fredrick.5@osu.edu
Gopalan, Venkat	Biochemistry	CBS	gopalan.5@osu.edu
Green, Pat	Vet Biosci	Veterinary Medicine	green.466@osu.edu
Henkin, Tina	Microbiology	CBS	henkin.3@osu.edu
Hopper, Anita	Mol Gen	CBS	hopper.64@osu.edu
Ibba, Mike	Microbiology	CBS	ibba.1@osu.edu
Jackman, Jane	Biochemistry	CBS	jackman.14@osu.edu
Jang, JC	Horticulture & Crop Science	FAES	jang.40@osu.edu
Kolb, Stephen	Neurology MC Biochem	Medicine	Stephen.Kolb@osumc.edu
Krzycki, Joe	Microbiology	CBS	krzycki.1@osu.edu
Li, Jianrong	Food Science	FAES	li.926@osu.edu
Musier-Forsyth, Karin	Chemistry/Biochemistry	MAPS	musier@chemistry.ohio-state.edu
Perotti, Daniela	MIVIMG	Medicine	Danielo.Perotti@osumc.edu
Schoenberg, Dan	MC Biochem	Medicine	schoenberg.3@osu.edu
Wharton, Robin	Mol Gen/MIVIMG	CBS	wharton.88@osu.edu

Appendix 2

Proposed Budget and Budget Justification

**MEMORANDUM OF UNDERSTANDING
CENTER FOR RNA BIOLOGY FUNDING PLAN
FY 2012-FY 2015**

May 18, 2011

The purpose of this memorandum of understanding is to detail the funding levels by which the Center for RNA Biology will continue to operate.

1. Operating expenses for FY 2012—15:

College of Medicine	\$13,333
College of Arts & Sciences	\$13,333
Office of Research	\$13,333
(for a total \$40,000)	

Plus an additional \$10,000 from the College of Medicine for use as an administrative salary supplement.

2. RNA Fellowship support for FY 2012—15:

College of Medicine	\$40,000
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Support of one fellow (stipend, tuition and fees).
This student must be in a lab from this college.

College of Arts & Sciences	\$80,000
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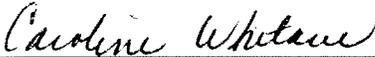
Support of two fellows (stipend, tuition and fees).
These students must be in labs from this college.

The funding amount listed above is the maximum amount to be provided by the college. The actual transfers will be conducted at the end of the fiscal year based on the actual stipend, benefits and fee authorization expenditures of each individual selected for these fellowships.

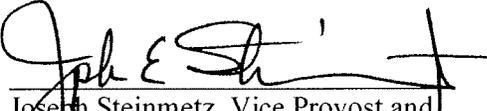
Any changes to the MOU must be with the express and written permission of all units involved.



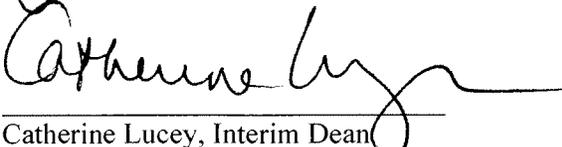
Peter March, Interim Dean
Div. of Natural and Mathematical Sciences



Caroline Whitacre
Vice President for Research



Joseph Steinmetz, Vice Provost and
Executive Dean, College of Arts and Sciences



Catherine Lucey, Interim Dean
College of Medicine

Appendix 3

Letters of Support from Department Chairs with Faculty in the Center



Michael K. Chan, Ph.D.

Department of Biochemistry

776 Biological Sciences
484 West 12th Avenue
Columbus, OH 43210-1214

March 14, 2009

Dr. Daniel R. Schoenberg
Director, Center for RNA Biology
Professor, Department of Molecular and Cellular Biology
CAMPUS

Phone (614) 292-8375
Fax (614) 292-6773
e-mail chan@chemistry.ohio-state.edu

Dear Dan,

On behalf of the Department of Biochemistry, I write to express my strong support for the establishment and formal recognition of a Center for RNA Biology (CRB) at OSU.

During the last 15 years, the steady increase in the number of OSU researchers in life sciences whose interests encompass some aspect of RNA biology has been paralleled by an impressive increase of high-impact papers and extramural grants in this area. My own department has been able to exploit this recognition to hire outstanding junior (Dr. Jane Jackman, Au'07) and senior (Dr. Karin Musier-Forsyth, Ohio Eminent Scholar, Wi'07) faculty. Clearly, in addition to having a critical mass of investigators who catalyze the recruitment of talented new faculty and trainees, the formation of a center will provide new gravitas and allow for concrete funding/training mechanisms that will further develop research excellence in different aspects of RNA biology.

Despite the absence of a formally recognized center, your sustained and long-standing efforts to organize the faculty for monthly "RNA club" seminars and kick-start the mid-west Rustbelt RNA Meeting (RRM) have already paid rich dividends by promoting fruitful trans-departmental/college/university collaborations. The CRB will help enhance interactions among trainees and mentors with overlapping interests and contribute to innovative research accomplishments that might not happen otherwise. I also envision that faculty who have research ties and are held together by their common CRB affiliation might develop advanced, graduate level courses thus enriching the teaching mission at OSU.

Both under my leadership and that of my predecessor (Prof. Richard Swenson), the Department of Biochemistry has enthusiastically supported CRB activities due to the continued interest and participation of our faculty and students. For example, in addition to fiscal and staff support, one of our faculty members (Prof. Mark Foster) co-organized the RRM for two years; I state this to merely highlight that the Biochemistry leadership supports this mutually beneficial partnership at various levels.

In closing, I reiterate my support for formal recognition of the OSU Center for RNA Biology and expect that my faculty will be an integral part of this new initiative. This move comes at an opportune time and will afford further national and international prominence to RNA biology research at OSU.

My best wishes to you and all those affiliated with this new Center for RNA Biology.

Sincerely,

A handwritten signature in black ink that reads "Michael K Chan".

Michael K. Chan, Ph.D.
Professor of Chemistry and Biochemistry
Interim Chair, Biochemistry



College of Biological Sciences

Department of Plant Cellular and Molecular Biology
500 Aronoff Laboratory
318 W. 12th Avenue
Columbus, OH 43210 USA

Phone: 614-292-1982
Fax: 614-292-6345
scholl.1@osu.edu

March 12, 2009

Daniel R. Schoenberg, Ph.D., Professor
Molecular & Cellular Biochemistry
Director, Center for RNA Biology
The Ohio State University
366 Hamilton Hall, 1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan,

On behalf of the Department of Plant Cellular and Molecular Biology, I wish to express enthusiastic support for the application of the Center for RNA Biology to be named a formal Center at OSU. Our Department has faculty who have benefited greatly from participation in the present activities of this faculty group. All of the faculty on campus who study biology will benefit from the creation of a formal Center for RNA Biology. The academic credentials of this group are most impressive, and it is clear that the Center will be successful in pursuit of its admirable goals.

I wish you luck in this application and look forward to cooperating with your Center. Our Department fully supports this application.

Very sincerely,

A handwritten signature in black ink that reads 'Randy Scholl'.

Randy Scholl

Interim Chair, Dept. of Plant Cellular and Molecular Biology



College of Veterinary Medicine

Department of Veterinary Biosciences
Office of the Chairperson
207 Goss Laboratory
1925 Coffey Road
Columbus, Ohio 43210-1093
Phone 614-292-4489
Fax 614-292-6473
www.vet.ohio-state.edu/biosciences.htm

March 13, 2009

Dr. Daniel R. Schoenberg, PhD
Professor
Molecular & Cellular Biochemistry
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dr. Schoenberg (Dan):

This letter serves to support your efforts to organize and facilitate faculty with research interests in basic, applied, clinical and translational aspects of RNA biology. Specifically, I applaud your teams work to attempt to obtain formal Center status for the group.

The endorsement of the Center for RNA Biology by the University will foster RNA-related research and enhance your ability to seek extramural funds for programmatic efforts. As you are aware, we have strongly supported faculty in our College who are members of the RNA Research Group with new laboratory space, generous research start ups, core facilities, and direct funds for graduate students and postdoctoral scientists. The formation of a Center will assist our ongoing partnerships. Your efforts will help position OSU as an international leader in the RNA biology field. I believe that the designation of the group as a "Center for RNA Biology" will allow you to continue to partner with those colleges and other Centers involved providing appropriate research space to facilitate and coordinate the activities of the Center. The ability to form an approved Center will increase your chances to seek extramural funds for instrumentation and programmatic grants.

I wish you the best in your efforts to seek support from Colleges involved and the Office of Research to assist in the infrastructure of the center including seminar and educational activities, seed grants for collaborative interdisciplinary research, and develop undergraduate and graduate training programs.

Sincerely,

A handwritten signature in cursive script that reads "Michael D. Lairmore".

Michael D. Lairmore, DVM, PhD
Professor and Chair
Associate Director for Basic Sciences
Comprehensive Cancer Center



Department of Microbiology

484 W. 12th Avenue
Columbus, OH 43210-1292

Phone (614) 292-2301
Fax (614) 292-8120

Professor Daniel R. Schoenberg,
Department of Molecular and Cellular Biochemistry
366 Hamilton Hall,
CAMPUS, OH 43210

March 13th 2009

Dear Prof. Schoenberg,

This letter is to add my very strong support, both personally and on behalf of many faculty members in the Department of Microbiology, for your proposal to establish an Ohio State University Center for RNA Biology. As you know, several faculty members in the Department of Microbiology were founding members of an informal "RNA Group" that provided the faculty-interactions and foundation that led to the initiative to develop an OSU Center for RNA Biology. This is an almost ideal example of the success of a very interactive and productive research community that is not defined or bounded by Departments or Colleges but by common research interests and goals. RNA biology and the roles of RNA molecules in all aspects of biology will be focal areas for research for the foreseeable future, and this is an area in which OSU already has national-leadership strength. The formal establishment of a Center will recognize and underline this reality, and will further focus and facilitate RNA research at OSU.

This is a very important step-forward for all of the life-sciences community at OSU. I congratulate you and your colleagues on this initiative. Please do ask, if I can help more in any way.

Yours sincerely,

John N. Reeve, Ph.D.
Rod Sharp Professor of Microbiology
Chair, Department of Microbiology



Department of Physics

Office of the Chair
191 West Woodruff Avenue
Columbus, OH 43210-1117

Phone (614) 292-2653
Fax (614) 292-7557

March 11, 2009

Daniel R. Schoenberg
Director, Center for RNA Biology
333 Hamilton Hall
1645 Neil Avenue
CAMPUS

Dear Dr. Schoenberg,

I am happy to endorse the proposed Ohio State University Center for RNA Biology. This center will enable interdisciplinary approaches to this important field. I particularly support the participation of physics faculty member Prof. Ralf Bundschuh in the center, and look forward to hearing about great science in the years to come.

Sincerely,

James J. Beatty
Chair, Department of Physics
Professor of Physics
Professor of Astronomy

JJB:sm



Department of Molecular and
Cellular Biochemistry

CAA
24 of 61

333 Hamilton Hall
1645 Neil Avenue
Columbus, OH 43210-1218

Phone: (614) 292-5451
Fax: (614) 292-4118

March 11, 2009

Dan Schoenberg
Department of Molecular & Cellular Biochemistry
Director, Center for RNA Biology
Ohio State University

Dear Dan,

This letter is sent in strong support of the efforts of you and your colleagues to form the Center for RNA Biology at Ohio State. The RNA Group is the best example in the Life Sciences at OSU of a group of investigators that work across department and college lines to perform multi-disciplinary, high profile research in an area at the forefront of modern biology. Of note, this initiative started from the ground-up, beginning with faculty who understand the benefit of interacting with like-minded scientists so that collectively they can stay at the cutting edge of research in RNA Biology. The group has achieved a national reputation, and the RNA Group has become instrumental as a recruiting tool to bring the best faculty in this area at the national level to OSU. The basic work from this group also underpins several lines of translational research in the College of Medicine, for example in the Infectious Disease and Cancer areas.

The RNA Group has reached a critical mass, and the next obvious step is to organize as a formal Center. When grass-roots, multi-disciplinary teams like yours reach this critical mass, the best thing the administration can do is provide resources and stand aside. Any investment will pay off handily, in high profile publications, collaborative grant applications, graduate and postdoctoral training programs and national reputation. I recommend strongly that this is the course our administration follows regarding your proposal for the Center for RNA Biology. Thanks for your strong leadership in this important effort. Without your persistence and dedication over the past decade, the Center for RNA Biology would not be realized.

Sincerely,

Michael C. Ostrowski
Professor & Chair
Molecular & Cellular Biochemistry



The Ohio State University
Department of Neurology

CAA
25 of 61
1654 Upham Drive
4th Floor Means Hall
Columbus, Ohio 43210-1228

March 11, 2009

Dan Schoenberg, Ph.D.
Director, Center for RNA Biology
366 Hamilton Hall
The Ohio State University
Columbus, OH 43210

Dear Dr. Schoenberg:

I am delighted to write this letter of support for the formation of a Center for RNA Biology here at Ohio State. We have participated in the recruitment of Stephen Kolb, M.D., Ph.D. and Dan Battle, Ph.D. to the department of neurology at Ohio State. Both faculty members came from the laboratory of Dr. Gideon Dreyfuss at the University of Pennsylvania. They are both interested in RNA processing and how problems with this process can result in human disorders such as spinal muscular atrophy. The formation of such a center will allow Ohio State to continue to develop excellence in this scientific area of basic and clinical research.

Please let me know if I can be of further assistance.

Sincerely,

A handwritten signature in black ink that reads 'Michael Racke'. The signature is written in a cursive style with a large initial 'M'.

Michael K. Racke, M.D.
Professor and Chairman of Neurology
The Helen C. Kurtz Chair in Neurology



Department of Horticulture and Crop Science

202 Kottman Hall
2021 Coffey Road
Columbus, OH 43210-1086

Phone (614) 292-2001
Fax (614) 292-7162 (Kottman)
Fax (614) 292-3505 (Howlett)
hcs.osu.edu

March 9, 2009

Daniel R. Schoenberg
Director, Center for RNA Biology
Molecular & Cellular Biochemistry
333 Hamilton Hall
1645 Neil Avenue
Columbus, OH 43210-1218

Dear Dr. Schoenberg,

With this letter I give my full support for Dr. J.C. Jang becoming a member of the Center for RNA Biology at the Ohio State University which is in process of attempting to become a formal Center. His association with such a Center will without question advance is work in the sugar regulatory network and the signaling role of sugar, and provide the basis for peer interaction.

Best regards,

A handwritten signature in cursive script, appearing to read "William M. Randle".

William M. Randle
Professor and Chair

Cc: J.C. Jang



Department of Chemistry

Newman and Wolfrom Laboratory
100 West 18th Avenue
Columbus, OH 43210-1185
www.chemistry.ohio-state.edu

Professor Malcolm H. Chisholm
Phone: 614-247-6348
FAX: 614-292-0368
chisholm@chemistry.ohio-state.edu

March 9, 2009

Daniel R. Schoenberg, Ph.D, Director
Molecular & Cellular Biochemistry
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dr. Schoenberg,

As chair of the Department of Chemistry, I am writing to express my enthusiastic support for the formal establishment of the Center for RNA Biology at OSU. Two members of the RNA Center faculty, Karin Musier-Forsyth and Jimmy Cowan, have primary appointments in Chemistry.

The RNA faculty span multiple colleges and disciplines, yet form a cohesive, interactive group, with a track record of collaboration, joint publications and grants. Although a number of programmatic activities are already in place, including a monthly seminar program and an annual Midwest RNA meeting, the establishment of a formal Center offers the ideal mechanism to build upon, and substantially broaden these interactions and activities. It will foster new collaborations and increase the likelihood of attracting funding in this interdisciplinary area, including training grants and program project grants.

This is an opportunity to formalize interactions between an outstanding group of faculty working at the forefront of an exciting research field and it has my unreserved support.

With best personal regards,
Sincerely,

Malcolm H. Chisholm
Department Chair and Distinguished University Professor

MHC:sdk



Department of Molecular Genetics

484 West 12th Avenue
Columbus, OH 43210-1292

Phone 614-292-8084
Fax 614-292-4466
<http://www.osumolgen.org>

March 3, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Department of Molecular & Cellular Biochemistry
The Ohio State University

Dear Dan:

With this letter I commit my strong support for the formal establishment of the Center for RNA Biology at The Ohio State University. One of the attractions for me to relocate from Pennsylvania State University to OSU was the large group of outstanding RNA researchers here. In the last two years, with additional new hires of senior faculty members such as Karin Musier-Forsyth (an OSU Eminent Scholar) and Robin Wharton (a former HHMI investigator) and outstanding junior members such as Jane Jackman, Amanda Bird, Steven Kolb, and Dan Battle, the level of RNA research at OSU has become even better and, in my opinion, it is unparalleled anywhere else in the world.

As you know, I am an active member of the RNA community and I am serving on the Steering Committee for the RNA center. As a former President of the International RNA Society I am delighted that OSU has supported the development of the RNA group to center status. The formal establishment of the center will undoubtedly result in further collaborations, interdisciplinary and cutting edge advances, and new extramural funding. I am in full support of the proposal to relocate faculty members from different colleges together in one physical location as it will provide an exciting environment for the undergraduate and graduate students and the postdoctoral fellows working on RNA biology and it will create new interdisciplinary collaborations. I also support the proposed (and modest) budget for this center including the administrative structure, new equipment, undergraduate and graduate RNA fellowships, and support for scientific conferences.

With the formal establishment of the Center for RNA Biology, I am very optimistic that we will successfully compete for an NSF IGERT and/or a NIH T32 training grant and I am very certain that the quality and quantity of published and highly cited research from center members and extramural support will move to an even steeper upward trajectory that will be a source of international recognition and pride for OSU.

Sincerely,

A handwritten signature in blue ink that reads "Anita K. Hopper".

Anita K. Hopper
Professor and Chair



The Department of Food Science
and Technology

College of Food, Agricultural, and Environmental Sciences
Parker Food Science Building 2015 Fyffe Road
Columbus, Ohio 43210-1007

Phone 614 292-6281
FAX 614 292-0218
<http://fst.osu.edu>

March 13, 2009

Dr. Daniel R. Schoenberg
Director, Center for RNA Biology
Molecular and Cellular Biochemistry
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dr. Schoenberg:

I am writing to support the formation of the Center for RNA Biology. I have a new faculty member, Dr. Jianrong Li (Assistant Professor), who is active in RNA biology. He joined OSU in April 2008 and the Center for RNA Biology in December 2008. Dr. Li's research program is focused toward foodborne viruses that have a major impact on food safety and public health. Viruses are responsible for more than 60% of foodborne illnesses and include human norovirus, astrovirus, rotavirus, hepatitis A, and hepatitis E. These viruses use RNA as their genetic material. During virus replication, viral genomic RNA will replicate to generate more genetic material. During viral gene expression, viral messenger will be modified and translate into viral proteins. Inhibiting viral RNA replication and messenger RNA modification will in turn inhibit viral growth and thus block viral infection. Therefore, RNA is a novel target for anti-viral strategies. Dr. Li is also developing novel methods to detect viruses in food samples by targeting the viral RNA. A sensitive and rapid detection method will allow us to monitor virus contamination and thus to develop technology for the inactivation of viruses in food.

Dr. Li will benefit from interaction with the proposed Center in several ways. The Center will facilitate his collaborations with other RNA scientists across campus leading to preparation of interdisciplinary research grants and publication of cutting-edge research. The Center should also provide a focus that will enhance the recruitment and training of outstanding graduate students and post-docs.

Sincerely,

Denise M. Smith
Professor and Chair

Appendix 4

Letters of Support from the Vice President for Research and from Deans with Faculty in the Center



Office of Research

Vice President for Research
208 Bricker Hall
190 North Oval Mall
Columbus, OH 43210-1321

Phone (614) 247-8356
Fax (614) 292-6602
whitacre.3@osu.edu
www.research.osu.edu

March 12, 2009

Daniel R. Schoenberg, Ph.D.
Professor of Molecular and Cellular Biochemistry
366 Hamilton
1645 Neil Avenue
Columbus, OH 43210

Dear Dr. Schoenberg:

I am delighted to write in support of your request to create a Center for RNA Biology at The Ohio State University. This initiative began as a series of informal meetings of the "RNA Group" during the mid-1990s, involving just a few RNA research labs on campus. These initial meetings have grown to encompass 27 research groups across campus, which not only hold monthly seminars, but have also organized an annual Midwest "Rustbelt RNA Meeting" attended by scholars from across Ohio and neighboring states.

The center's research foci include a number of distinct but interrelated research themes, including cell trafficking, gene regulation, RNA structure and dynamics, RNA biogenesis and maturation, and translation. This emphasis on RNA underscores its importance as a unifying concept throughout the basic molecular and life sciences, as well as the first product of each gene and a central regulator of gene expression. Basic science studies of RNA at Ohio State span numerous areas including biology, chemistry, physics, and mathematics. RNA studies also play a fundamental role in medicine, infectious diseases, industry and agriculture.

This Center for RNA Biology at The Ohio State University will bring together 27 outstanding faculty from 7 colleges and 14 academic departments. Among the 27 faculty are an Ohio Eminent Scholar, three OSU Distinguished Scholars, seven AAAS Fellows, two Pfizer award winners, three American Academy of Microbiology Fellows, and a National Academy Medalist. Faculty associated with the center have contributed 99 high impact publications during the 2004-2009 timeframe, with articles in *Nature*, *Science*, and the *Proceedings of the National Academy of Sciences*, as well as a range of top-tier specialty journals. This record of joint publications among these stellar scientists paves the way for breakthrough discoveries at the intersections of their disciplines. It also creates extraordinary opportunities for students to gain interdisciplinary research experience, as evidenced by the diversity of colleges from which the faculty are drawn, including Biological Sciences, Mathematical and Physical Sciences, Medicine, Veterinary Medicine, Food, Agricultural and Environmental Sciences, and Public Health.

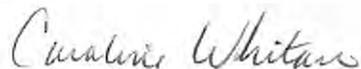
One unique aspect of this center is its connections with industry. BioOhio, a statewide organization that promotes a competitive bioscience industry in Ohio, offers the opportunity for these scholars and their students to interface with industry partners and to develop an educated workforce that will aid in new job creation for Ohio and the nation.

The proposed center has also developed an international presence. Globalization efforts by these researchers include plans for hosting an international tRNA Workshop in 2012 and an upcoming meeting of the RNA Society. RNA faculty already have strong connections and a record of collaborations with scientists from Croatia, Chile, Denmark, Czech Republic, France, Poland, Germany and Japan. In addition, the center will have a formal research exchange with RNA groups in Strasbourg, France.

Faculty in the center are already well funded from extramural sources, and are energetically pursuing new funding opportunities. Currently underway are proposals to the NSF IGERT (Integrative Graduate Education, Research, and Training) program and to the NIH Shared Instrumentation Program. The prospects for long-term strength in external funding are excellent, given the previous successes and stellar records of the group.

In summary, the proposed Center for RNA Biology at The Ohio State University truly exemplifies the concept of a broadly multidisciplinary research center, with active and ongoing collaborations, outstanding publications, and a strong external support record. I enthusiastically support the proposal to confer formal center status on this effort. It will be a source of reputational pride for the university in the years to come.

Sincerely,



Caroline Whitacre
Vice President for Research



186 University Hall
230 N. Oval Mall
Columbus, OH 43210

Phone (614) 292-2874
Fax (614) 292-8666

March 4, 2009

Professor Daniel Schoenberg
Molecular & Cellular Biochemistry
Director, Center for RNA Biology
366 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210

Dear Dan:

The Ohio State University is home to many outstanding RNA scientists and I applaud your efforts to bring them together in the RNA Center. I note with pride that the largest group of associated faculty come from Biological, Mathematical and Physical Sciences (BMPS). Thus, as Interim Dean of BMPS I fully support the center proposal and will be happy to lend my support to its administrative oversight and organization.

I expect that the RNA Center to become one of the top centers in the university under your leadership. It will provide the intellectual momentum to attract and retain top faculty and to recruit outstanding graduate students. I am confident that the RNA Center will lead to NSF IGERT and NIH Training Grant support. The links to industry and other Ohio University's are already impressive and are fully consistent with the Ohio System concept and for stimulating the Ohio economy.

Good luck with the center application, it has my complete support.

Sincerely,

Matthew S. Platz
Distinguished University Professor of Chemistry
Interim Dean, Biological, Mathematical and Physical Sciences



Wiley "Chip" Souba, MD, ScD, MBA
*Vice President and Executive Dean
for Health Sciences
Dean, College of Medicine*

254 Meiling Hall
370 West 9th Avenue
Columbus, OH 43210
Phone: 614 292 2600
Fax: 614.292.4254
E-mail: Chip.Souba@osumc.edu

March 12, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Department of Molecular & Cellular Biochemistry
The Ohio State University
366 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan,

I write to strongly endorse your application to establish the Center for RNA Biology as a formal University Center at The Ohio State University. The study of RNA impacts the entire spectrum of human health, ranging from viral infections to cancer and heart disease, and the relationship of RNA research to medicine is highlighted in the NIH roadmap. The large and productive community of RNA researchers at Ohio State places us at the forefront of this important area of study, and this group has achieved the critical mass that now is the time that it transitions to formal Center status.

The faculty that make up this Center application have already made impressive achievements. You established a regional meeting that last year brought 250 participants to central Ohio. The interdisciplinary seminar program and courses are popular and successful. I am pleased to also see that you have submitted one NIH training grant, were selected by the Office of Research to submit an NSF IGERT training grant, and have already begun discussions with the NIH about program project grant submissions.

The faculty that would comprise the Center are some of our most visible, well-funded and productive faculty, and I believe that formal recognition as a University Center will both insure your future success and create new opportunities for the entire University. The Center for RNA Biology will be a point of pride that will have a broad impact across the University, enhance our international reputation, and help recruit top talent to our institution.

Sincerely,

A handwritten signature in black ink that reads 'Wiley Souba'.

Wiley W. Souba, MD, ScD
Dean, College of Medicine
Vice President and Executive Dean for Health Sciences



College of Veterinary Medicine

Office of the Dean
125/127 Veterinary Medicine Academic Building
1900 Coffey Road
Columbus, OH 43210-1092

Phone (614) 292-1171
Fax (614) 292-7185

March 2, 2009

Daniel R. Schoenberg, PhD
Molecular and Cellular Biochemistry
333 Hamilton Hall
1645 Neil Avenue
Columbus, OH 43210

Dear Professor Schoenberg:

I wish to communicate my strong and enthusiastic support for your application for full status as the OSU Center for RNA Biology. The College of Veterinary Medicine currently has two outstanding researchers (Drs. Boris-Lawrie and Green) that have had long standing involvement with your group. The Center for RNA Biology represents an important mechanism for facilitating campus-wide collaborations in research and student training, allowing OSU to recruit and retain exceptional investigators, postdoctoral researchers and graduate students, and promoting national and international recognition.

OSU is one of the nation's largest, most comprehensive, and leading academic research institutions in the country. Due to the scope, scale, and diversity of the seven Colleges and 14 departments in the Center for RNA Biology, you are uniquely positioned to train students in cutting-edge, innovative and integrative research in a way that no other university in the world can.

I am very confident that your cross-college multidisciplinary group and the resources and infrastructure at OSU for RNA research and education will continue to form an excellent opportunity for graduate students across the university to interact with a distinguished core of accomplished researchers in the field of RNA biology. The OSU College of Veterinary Medicine strongly supports application for full status as the Center for RNA Biology and offers any assistance needed to help shepherd your proposal to implementation.

Sincerely,

A handwritten signature in black ink, appearing to read "John A.E. Hubbell", with a long horizontal line extending to the right.

John A.E. Hubbell, DVM, MS, ACVA
Professor and Interim Dean



Office of the Dean

College of Education and Human Ecology
127 Arps Hall
1945 North High Street
Columbus, OH 43210-1172

March 4, 2009

Phone (614) 292-2461
Fax (614) 292-8052

Dr. Daniel R. Schoenberg
Director, Center for RNA Biology
Professor Molecular & Cellular Biochemistry
333 Hamilton Hall, 1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan,

I strongly support establishment of the Center of RNA Biology as a University Research Center at The Ohio State University. After our meeting last week to discuss the Center, I understand the many benefits the Center for RNA Biology would bring to individual departments and enhancing the international reputation of our University.

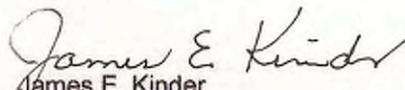
One of the most impressive aspects of the Center for RNA Biology is the diversity of faculty within the Center. The international reputation and extramural funding success of the Center's more established faculty will be highly beneficial to faculty who are earlier in their career development. These faculty members will have a great source for mentorship from faculty members with superb scientific expertise. The excellent national and international reputations along with leadership skills will place faculty earlier in their developmental stages in a prolific, thought-provoking research setting. The broad ranges of expertise will also create a stimulating research environment that will readily foster new collaborations and provide opportunities for faculty to assess new directions or areas of research endeavor.

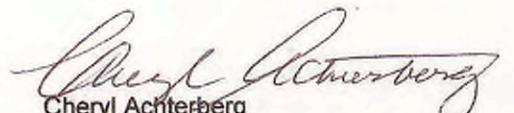
From the perspective of our Department of Human Nutrition and College of Education and Human Ecology, I envision many new opportunities the Center of RNA Biology would open for our students. Having research laboratories within a centralized location allows a unique opportunity for students to interact with other RNA biologists. This will enable our students to learn about new techniques but also assess new avenues for their research. This venue, through which our students can be part of the Center, will also be an important recruiting tool allowing us to attract higher quality students than would otherwise be the situation.

Over the last few years we have seen a clear trend in grant funding favoring interdisciplinary research. Many of the nutrition faculty members have collaborations with faculty in other departments. However, the Center of RNA Biology provides a venue through which interdisciplinary research is significantly enhanced that will be looked on favorably by funding agencies. In this regard, the highly interactive setting of the Center for RNA Biology serves as a model for other such centers at OSU.

In summary, we are highly supportive of developing the Center for RNA Biology at The Ohio State University. If we can support this endeavor in other ways, do not hesitate to contact us.

Sincerely,


James E. Kinder
Professor and Chair
Department of Human Nutrition


Cheryl Achterberg
Dean
College of Education and Human Ecology



Office of the Vice President for
Agricultural Administration

Room 100
2120 Fyffe Road
Columbus OH 43210
Phone 614-292-6891
FAX 614-292-0452

March 13, 2009

Daniel R. Schoenberg, Ph.D.
Molecular & Cellular Biochemistry
Director, Center for RNA Biology
The Ohio State University
366 Hamilton Hall
1645 Neil Avenue
Columbus OH 43210-1218

Dear Dan:

Thank you for the opportunity to express our support for the proposed Center for RNA Biology. Although we only have two faculty listed as affiliated with the Center, we recognize the importance of RNA biology. Indeed, pathways and processes in plants, animals, and microbes are impacted by RNA Biology, all of which are of interest to our College.

We will follow the development of the proposed Center for RNA Biology with interest.

Sincerely,

A handwritten signature in blue ink that reads 'Bobby D. Moser'.

Bobby D. Moser
Vice President for Agricultural Administration and Dean

Appendix 5

Letters of Support from other Center Directors with Interests in the Center for RNA Biology



Michael A. Caligiuri, M.D.
Director, Comprehensive Cancer Center
CEO, James Cancer Hospital and Solove
Research Institute
J.L. Marakas Nationwide Insurance
Enterprise Chair in Cancer Research

CAA
39 of 61
300 West 10th Avenue, Suite 519
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Phone: (614) 293-7521
FAX: (614) 293-3132
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www.caligiurilab.com
www.osuccc.osu.edu

March 13, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Professor, Molecular & Cellular Biochemistry
The Ohio State University

RE: Center for RNA Biology

Dear Dan,

I write to enthusiastically express support for the creation of the Center for RNA Biology as a formal University Center at The Ohio State University. RNA biology impacts many aspects of cancer, from mutations that affect gene expression, to changes in RNA processing that produce different gene products, and the emerging and very powerful impact of small (micro) RNAs, which are proving important for diagnostics and potentially for therapeutics. I note with pride that Ohio State has one of the largest concentrations of RNA research labs in the country, and as a member of the Comprehensive Cancer Center you have taken a leadership role in establishing this new Center. A formal Center for RNA Biology will enhance life sciences research at Ohio State, and synergies with the Comprehensive Cancer Center will enhance our mission of moving discoveries in the laboratory to patient care. Good luck with your initiative, and I look forward to working with the Center for RNA Biology.

Sincerely,

Michael A. Caligiuri, M.D.
Director, Comprehensive Cancer Center
CEO, James Cancer Hospital & Solove Research Institute
JL Marakas Nationwide Insurance Enterprise Foundation Chair in Cancer Research



A Comprehensive Cancer
Center Designated by the
National Cancer Institute



**Center for Microbial Interface
Biology**

Larry S. Schlesinger, Director
John S. Gunn, Vice Director

1009 Biomedical Research
Tower
460 W. 12th Avenue
Columbus OH 43210-2210
Phone: 614-292-0918
Fax: 614-292-9616

March 7, 2009

Daniel R. Schoenberg, Ph.D., Professor
Director, Center for RNA Biology
Molecular & Cellular Biochemistry
The Ohio State University

Dear Dan,

This letter is written to express the strong enthusiasm of the Members of the OSU Center for Microbial Interface Biology (CMIB) for the formal establishment of a Center for RNA Biology (CRB) as a University Center at the Ohio state University. As you know, the CMIB went through this process and became a Board of Trustees-approved Center in December 2006. Thus, I know first hand the importance of this distinction and the impact that a Center such as yours will have on the OSU campus community of science as well as regionally, nationally and internationally.

The CMIB is focused on research in infectious diseases, microbial pathogenesis, and Biodefense. Our goal is to understand the complex molecular details of microbe-host interactions using cutting edge platform technologies that involve building productive collaborations between faculty in immunology, cell biology, pathology, biochemistry and pharmacology, microbiology, genetics, structural biology, and bioinformatics. We currently have eleven core faculty members (with nearly \$20 million in extramural funds, predominantly from the NIH) and a general membership of 68 faculty representing 7 colleges. Our expertise spans bacteria, viruses, fungi and parasites. The ability of our Center to effectively engage the scientific community in collaborative interactions is having significant impact as evidenced by a CMIB NIH-funded training grant and leadership in OSU's TIE program called Public Health Preparedness for Infectious Diseases.

Several faculty members of the CMIB have a strong scientific focus in RNA biology and are active members in your proposed Center. The CRB has already experienced significant development with great success. Through innovative interdisciplinary seminars, educational initiatives, effective scientific collaborations, grants and awards, your Center is ideally positioned to become a formal University Center. The focus of your Center is by its nature broad and this is evidenced by the number of scientific groups, departments and Centers that are involved. There is no doubt that your Center is fostering programmatic development and is at the cutting edge of interdisciplinary science. Trainees will benefit greatly by exposure to your faculty members in this discipline.

In summary, the CRB will foster excellence and international reputation to our university. I look forward to your continued success and further development of interactions between faculty members in our Centers.

Sincerely,

A handwritten signature in black ink, appearing to read 'Larry Schlessinger', with a stylized flourish at the end.

Larry Schlessinger, MD
Saslaw Professor of Medicine
Director, Center for Microbial Interface Biology and the Division of Infectious Diseases
Director, Medical Scientist Program



College of Veterinary Medicine
Department of Veterinary Biosciences

1925 Coffey Road
Columbus, OH 43210-1093

Phone: (614) 292-5661
FAX: (614) 292-6473

March 3, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Department of Molecular & Cellular Biochemistry
The Ohio State University

Dear Dr. Schoenberg (Dan):

I write on behalf of the Center for Retrovirus Research to express strong support for the formal establishment of the Center for RNA Biology (CRB) as a University Center at The Ohio State University. As you know, a number of the Center for Retrovirus Research members including myself have a strong focus on RNA biology and are active members of the community of RNA researchers on campus. The interaction between members of this active community is stimulating the University's research environment and is fostering programmatic development at the cutting edge of interdisciplinary science. These interactions help retain valuable faculty and they bolster our ability to recruit the best faculty and talented students to our institution. The formal establishment of the CRB will be another step in the effort to enhance the national and international reputation of The Ohio State University.

Some of the interactive activities of the CRB are interactive monthly meeting/seminar series, the annual regional Rustbelt RNA Symposium, and leadership in a number of highly-rated graduate courses. These activities provide added-value to bolster programmatic efforts and to mentor faculty and students. These interactions cross College boundaries and are evidence of the energy and passion of our faculty.

Your new charter very much models our own with goals to facilitate scientific interactions and foster collaborations, which has produced an NIH P30 Program Project Grant on Retrovirus-Host Interactions that was recently renewed for 10 years of continual funding. I expect similar programmatic success stories to develop from the CRB.

I look forward to working with you and other Center members to foster the research environment of The Ohio State University.

Sincerely,

A handwritten signature in black ink that reads 'Patrick L. Green'.

Patrick L. Green, Ph.D.
Professor of Veterinary Biosciences and Molecular Virology Immunology, and Medical Genetics
Director, Center for Retrovirus Research
CoDirector, Comprehensive Cancer Center Viral Oncology Program
The Ohio State University
1925 Coffey Rd
Columbus, OH 43210-1093
Ph: 614-688-4899 Fax: 614-292-6473
green.466@osu.edu

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The Ohio State University Hospitals / The Arthur G. James Cancer Hospital and Research Institute



Appendix 6

Letters of Support from Academic Interests Outside of The Ohio State University



CENTER FOR MOLECULAR BIOLOGY OF RNA
SINSHEIMER LABORATORIES

TEL: (831) 459-3703

FAX: (831) 459-3737

March 9, 2009

SANTA CRUZ, CALIFORNIA 95064

Prof. Daniel Schoenberg
Dept. of Molecular and Cellular Biochemistry
Ohio State University
1645 Neil Avenue
Columbus, OH 43210-1218

Dear Dan,

- I am writing in support of your efforts to establish a Center for RNA Biology at Ohio State University. There are many strong reasons for doing so. First, it is becoming abundantly clear that RNA is of far deeper significance to biology than we ever suspected; for example, nearly all of the human genome is transcribed into RNA, yet less than one percent codes for proteins (!). You and your colleagues have clearly established a critical mass of RNA scientists at OSU - by my own reckoning, the largest number of RNA groups at any single institution. Among them are a mixture of prominent, established investigators and up-and-coming bright young scientists, coming together from diverse departments across your campus. The extent of real interaction between the different groups (collaborations, joint publications, shared students, and so on) is truly impressive, as is their productivity (as evidenced by the large number of publications in high-profile journals) and their level of extramural funding.

Furthermore, the regular monthly meetings and regional RNA meetings that you have sponsored and organized over many years is a strong indication that this is a true functioning Center, not a mere paper administrative construct. Accordingly, I would urge your institution to take immediate steps to make it official, and to give appropriate recognition and support for what has been created out of sheer scientific passion. Your arguments that this will provide high visibility to OSU in a rapidly growing area of the biomedical sciences, enable recruitment and retention of top faculty, students and postdocs, stimulate interdisciplinary projects and lead to enhanced funding of all kinds, are all quite sound. I am in strong support of your efforts, and wish you all success.

Best regards,

A handwritten signature in black ink, appearing to read "Harry F. Noller", with a long horizontal flourish extending to the right.

Harry F. Noller
Sinsheimer Professor of Molecular Biology
Center for Molecular Biology of RNA

CAA
45 51 61

The Center for RNA Molecular Biology

Case Western Reserve University - School of Medicine

March 11, 2009

To Whom It May Concern:

I am writing with my strong support for the creation of a Center of RNA Biology at the Ohio State University. I am the director of an analogous center at Case Western Reserve University School of Medicine. Our center is structured as an independent unit indistinguishable from a basic science department. We have the ability to make primary faculty appointments and have our own budget negotiated annually with the dean. My understanding is that the proposed Center at Ohio State would have a different administrative structure but its mission would be similar to that of ours.

Our center was established to take advantage of our strength in RNA biology by facilitating collaboration among scientists with common interests and to serve as a source of expertise in RNA science for the rest of the Medical School. This concept has worked extremely well and our center has become nationally and internationally recognized. I believe that a similar center at Ohio State could be equally successful. Through recent hires in several departments, as well as existing faculty, Ohio State clearly has a critical mass of talented researchers working in a number of vibrant areas of current RNA research. If these researchers were given contiguous space, I would expect that they would interact synergistically and that collaborations would flourish. At a time of great uncertainty at NIH, such collaborative science provides a large advantage.

Several factors make this an ideal time to establish a Center for RNA Biology. First, RNA science is currently of exceptional interest as more and more roles for RNA are discovered. Second, as noted above, Ohio State has assembled a highly qualified cadre of senior and junior faculty in this area. Third, establishment of a center makes better use of shared equipment. In my experience, our total equipment needs dropped dramatically when groups with common needs were brought together.

In sum, I believe that establishing a Center for RNA Biology at Ohio State makes sense for both scientific and economic reasons and I support it without reservation.

Sincerely,



Timothy W. Nilsen
Professor and Director

Timothy W. Nilsen, Professor and Director

Mailing Address

CWRU-School of Medicine
10900 Euclid Avenue

Phone, Fax, E-mail

(216) 368-1606
(216) 368-2010

Web Site

www.rnaresearch.org



CASE WESTERN RESERVE
UNIVERSITY EST. 1826

February 17, 2009

Daniel R. Schoenberg, Ph.D.
Professor of Molecular & Cellular Biochemistry
Director, Center for RNA Biology
333 Hamilton Hall
1645 Neil Avenue
Columbus, OH 43210-1218

Dear Daniel,

I am writing in support of your efforts to establish the Center for RNA Biology as a formal University Center at the Ohio State University. As you know, I recently visited OSU for two purposes. One was to give a seminar and interact with members of the Center for RNA Biology given that my research is in this area. The other was to provide outside consulting and advice to the Provost and Deans on approaches to campus reorganization that would increase the visibility and standing of OSU overall. The outline I provided that could accomplish these goals appeared to be well received, and as I will explain below, the approval of the Center for RNA Biology as a University Center fits neatly into what my vision would be for campus re-organization.

The biological sciences progress on a national level at ever-increasing speed to the extent that it is very difficult to keep pace using departmental structures as a model going forward. There are many reasons why specific departments should remain in place, and in some cases why departments with similar missions in different schools or colleges should be merged. However, changes in the departmental landscape are difficult to engineer and will never keep pace with the changing face of biological science. Furthermore, the line defining the boundaries between disciplines is becoming more and more blurry. In my field, genetics, we find that at the University of Wisconsin there are geneticists in over 30 different departments spanning five different schools or colleges. My department alone does not represent the full breadth and depth in genetics on the Wisconsin campus.

When I made presentations at OSU, the plan I outlined was to create discipline-based organizations that are cross-departmental in nature. Along with this, graduate programs in such disciplines could be created that are also non-departmental in nature, and many of these could be eligible for NIH or NSF training grant support. We use this model at Wisconsin with great success. There are a large number of campus-wide graduate programs that are organized by discipline rather than by department. Many are sponsored through the Graduate School. We have 32 separate NIH training grants that bring in \$14,000,000/year in support for about 300 graduate students. We also still have a large

number of departmentally based graduate programs so that the campus-wide programs supplement but do not replace departmental programs. With this model, faculty members are not restricted to their own department as a source of graduate students, but can draw from multiple programs if they qualify academically. This type of overlapping system of programs appears complex, but it enhances the research capabilities of faculty members who can serve as trainers in multiple programs and it enhances the training of graduate students who are exposed to research areas beyond their own specific program. It is ideally suited to foster cross-disciplinary research. Finally, programs like this are much more fluid than departments and can change much more rapidly as disciplines change going forward.

The best way to launch this kind of discipline-based campus organization is to make use of groups of faculty who have a natural scientific alliance but might be appointed in different departments or schools. The RNA Biology group at OSU is exactly the kind of group from which our campus-wide training programs emanated. There is a natural buy-in on the part of faculty such that the resistance often associated with changes in departmental structures is avoided. The Center for RNA Biology, which I understand currently operates under provisional status, would be the perfect “test case” to launch the kind of organization that I believe could transform the campus, especially if success in this center could be duplicated in one form or another in other areas of academic interest.

For the Center for RNA Biology to be successful, they need recognition at the University level so that they can represent the whole campus. This kind of umbrella organization is also what NIH looks for when they award training grants for graduate training. Because the Center for RNA Biology is exactly what I would recommend for the kind of campus transformation you desire, I strongly recommend that OSU give formal recognition to the Center for RNA Biology as a University Center including all of the resources that would be forthcoming to give this Center the funding it would need to succeed going forward. This kind of recognition would also be very powerful in NIH training grant applications in convincing NIH that the campus is willing to provide high-level institutional support to ensure that NIH dollars are well spent.

Overall, I fully endorse your application for formal recognition of the Center for RNA Biology as a University Center. This could be a transformative step that would enhance faculty recruiting, graduate student training and recruiting, and raise national awareness of OSU as a top-tier research institution.

Sincerely,



Michael R. Culbertson
Professor of Genetics and Molecular Biology; Chair, Laboratory of Genetics, Department of Genetics, College of Agricultural and Life Sciences (CAL S) and Department of Medical Genetics, School of Medicine and Public Health (SMPH); Director, Office of Graduate Studies and Professional Development (CAL S)



Paul L. Fox, Ph.D.
Professor of Molecular Medicine
Department of Cell Biology / NC10
Lerner Research Institute
Cleveland Clinic
9500 Euclid Avenue
Cleveland, OH 44195

Phone: (216) 444-8053
Fax: (216) 444-9404
E-mail: foxp@ccf.org
URL: <http://www.lerner.ccf.org/cellbio/fox/>

March 10, 2009

Council on Academic Affairs
The Ohio State University
Columbus, OH 43210-1218

Dear Committee Members,

It's a pleasure for me to write this letter of enthusiastic support for the proposal to create a formal Center for RNA Biology at Ohio State University with Professor Daniel Schoenberg, Ph.D. as its Director.

Cutting edge biological and biomedical research are social sciences. Even in a "specialized" area such as RNA biology, answers to the important questions almost always require detailed information taken from many areas ranging from medicine, to biochemistry and molecular biology, to computational biology, structural biology, and biophysics. Because few investigators have expertise in more than one or two of these areas, we depend on our excellent colleagues for insights and rigorous analysis of results. However, the distance between colleagues can present a formidable barrier to these critical interactions, even with the modern conveniences of e-mail and teleconferences. The day-to-day interactions are critical for fomenting and cementing truly successful scientific relationships. A spatially and intellectually close-knit group generates a potent synergy in which the whole is greater than the sum, and it can push individual members beyond their own limitations.

I am very familiar with the capabilities of most of the members of the OSU RNA Center. I have visited the group twice in the last few years and often cross paths at local, national, and international meetings. They form a highly-respected and immensely talented group of RNA biologists. I believe they are one of the scientific jewels not just of OSU, but also of the state. In fact, I know of no other group of RNA biologists at a single academic institution anywhere in the country with the depth and breadth of the OSU investigators. I believe that by their hard work and dedication to pushing RNA biology forward they have earned the recognition and advantages afforded by a true academic Center, including centralized laboratories, offices, shared equipment and other facilities.

The OSU RNA Center is indeed fortunate to have Dr. Schoenberg at the helm. He is a highly respected RNA biologist with the knowledge and experience to provide the leadership required to take the Center to new heights. I know personally that his organizational skills are first-rate as demonstrated by his leadership in initiating the highly successful Rustbelt meeting, and in organizing the equally successful provisional RNA Center. More importantly, they demonstrate

his vision and that he is not satisfied with the status quo. He is an ideal leader to take the RNA Center to the next level of excellence.

Please let me know if there is any other information I can provide.

Best wishes,

A handwritten signature in cursive script that reads "Paul L. Fox".

Paul L. Fox, Ph.D.



**Prof. Patrick A. Limbach, Head
Department of Chemistry**
University of Cincinnati
PO Box 210172
Cincinnati, OH 45221-0172

429K Rieveschl
(513) 556-1871
(513) 556-9239 (Fax)
Pat.Limbach@uc.edu

March 3, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Professor Molecular & Cellular Biochemistry
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan:

I am pleased to contribute this letter supporting your efforts, and those of your RNA colleagues, to become formally recognized as an Ohio State University Center for RNA Biology. Your efforts have my strong personal support, as well as the support of my colleagues in the Department of Chemistry at the University of Cincinnati.

For the benefit of the reviewers, I will note that my own research area is focused on RNA and RNA-protein structure and characterization. My laboratory has been developing new mass spectrometry-based technologies and techniques for the identification of RNAs, and for the characterization of RNA-protein complexes. My laboratory has been, and continues to be, funded by both the National Institutes of Health and the National Science Foundation in these research areas. I have personally benefited tremendously from interactions with my RNA colleagues at OSU, primarily during the annual regional RNA meeting sponsored, and often organized, by faculty who are participating in the Center for RNA Biology. I am currently Head of the Department of Chemistry at the University of Cincinnati, am an Ohio Eminent Scholar, and have been privileged to lead faculty recruiting efforts to attract additional RNA-focused faculty into our department and college at UC.

Formal establishment of the Center for RNA Biology will clearly have significant and long-lasting benefits, not just to OSU, but also to neighboring institutions such as UC. The field of RNA Biology has exploded with the advent of genomics, yet our understanding of RNA structure, function and importance is still in its infancy. By establishing this Center for RNA Biology, OSU will clearly create a unique, leading institution for RNA-related research. Because RNA-related research has such a great potential, both scientifically as well as economically, OSU will position itself to become a national and international leader in the field. Clearly the scientific credentials of the participating faculty are outstanding, yet formalizing this Center agreement will allow OSU to grow in prominence, recruit the most outstanding junior and senior faculty in the field, and become a "destination" for researchers and companies interested in RNA-related research. Even here at UC, we can benefit from OSU's international prominence in the field by our close proximity and scientific ties.



In my discussions with OSU RNA researchers and from my review of materials you provided, I believe the case is clear and strong that the Center for RNA Biology meets all of the established and required criteria for moving from provisional to formal Center status. The mission of the Center for RNA Biology is clear, congruent with institutional priorities, is inter-disciplinary in nature, and cannot be met within existing academic units. As noted above, the faculty quality is excellent, and it is clear these are faculty who communicate and work together as teams. I am most impressed with the collaborations, whether by joint funding, joint students or joint publications, that already exist among the faculty of the Center for RNA Biology. These collaborations and interactions are a strong positive indicator that this Center is destined for international prominence in the field of RNA-related research.

In summary, I want to reiterate my personal strong support for your request, as well as the strong support from my department and those of us working in the area of RNA research. Your interactions at OSU have been modeled by us at UC, as just last year we initiated an RNA Research Group to facilitate interactions and collaborations among interested faculty, post-docs and graduate students. We will continue to support your efforts, and look forward to working with our colleagues in the OSU Center for RNA Biology in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Pat Limbach". The signature is fluid and cursive, with a large initial "P" and "L".

Pat Limbach
Ohio Eminent Scholar
Professor and Head, Department of Chemistry





UNIVERSITY of
ROCHESTER
MEDICAL CENTER

CAA
52 of 61

Lynne E. Maquat, Ph.D.
J. Lowell Orbison Endowed Chair and Professor
Department of Biochemistry & Biophysics
601 Elmwood Avenue, Box 712
Rochester, New York 14642
(585) 273-5640
lynne_maquat@urmc.rochester.edu

February 16, 2009

Daniel R. Schoenberg, Ph.D., Professor
Molecular & Cellular Biochemistry
Director, Center for RNA Biology
The Ohio State University
366 Hamilton Hall, 1645 Neil Avenue
Columbus, OH 43210-1218

Dear Dan,

Your proposal to formalize the existence of The Ohio State University Center for RNA Biology could not come at a better time considering the importance of RNA biology to research science and the wealth of RNA-centric work ongoing at The Ohio State University.

As the NIH Road Map states, *“functional genomics, with an emphasis on RNA biology, will become a rapidly emerging scientific discipline, especially as large-scale, inexpensive genome sequencing becomes available. Each gene may produce many different types of RNA molecules, so the “transcriptome” is much more complex than the genome that encodes it”*.

Furthermore, the 2006 Nobel Prize in Medicine went to Andy Fire and Craig Mello for the discovery of RNA interference, which has spawned a revolution in biology and medicine. The 2008 Albert Lasker Basic Medical Research Award was won by Victor Ambros, David Baulcombe and Gary Ruvkun *“for discoveries that revealed an unanticipated work of tiny RNAs that regulate gene function in plants and animals”*.

There are now 27 RNA research labs at Ohio State with expertise ranging from the transcriptome to small RNAs, that latter of which are often being used as tools or targets to regulate gene expression. The RNA-centric faculty consists of computational biologists, cell and molecular biologists, biochemists, structural biologists, chemists and researchers doing more translational research, including those studying infectious disease or cancer. Having just given two seminars at The Ohio State in January – the first to the Center for RNA Biology, and the second to the OSBP/MSDB program – I am truly impressed with the quality and quantity of ongoing RNA research.

I strongly support the efforts of you and your colleagues to establish a bona fide Center for RNA Biology. I trust that the Council on Academic Affairs, the University Senate and Board of Trustees will appreciate the value of such a Center and the importance of providing the necessary infrastructure.

Sincerely,

Lynne E. Maquat, Ph.D.
J. Lowell Orbison Endowed Chair and Professor



OHIO
UNIVERSITY

Department of Chemistry and Biochemistry
Clippinger Laboratories
Athens, OH 45701-2979

tel 740.593.1737
fax 740.593.0148
web www.ohiou.edu/chemistry

March 3, 2009

Daniel R. Schoenberg, Ph.D.
Director, Center for RNA Biology
Professor Molecular & Cellular Biochemistry
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan:

I am writing to express my enthusiastic support for your application to form a formal Center for RNA Biology. I firmly believe the Center would further enhance the research mission and reputation of Ohio State University within the state of Ohio, nationally and internationally.

The international reputation and proven productivity in terms of grant dollars and high impact publications clearly indicate that the center faculty would provide an exceptional return on investment for the Center for RNA Biology. The synergistic benefits of bringing this talented group together into a formal center would result in enhanced recognition; enhanced scholarly discoveries (including those with translational opportunities for the biotechnology industry); and, exceptional educational opportunities for graduate students and postdoctoral scholars from around the world.

From the standpoint of an RNA researcher at another Ohio institution, I am very excited about the opportunities the Center for RNA Biology would bring to RNA research in the state of Ohio in general. Potential consultation and collaborations with center faculty would benefit scholars throughout the state, as would a fee-accessible core RNA instrumentation facility. In addition, the Center's ability to attract internationally renowned speakers would benefit all RNA scholars in the state who could travel to the centralized location of OSU to attend the seminar.

Finally, I believe that the Center for RNA Biology would ultimately bring a statewide financial and educational impact as a "center of excellence". The Center would lead to an increase in the start-up or relocation of biotechnology companies, thereby enhancing Ohio's reputation as a growing technology state. In addition, the Center's training and mentoring of scholars at all stages would increase the state's reputation as an educational powerhouse. In summary, creation of a formal Center for RNA Biology would benefit Ohio State University and the entire state of Ohio.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer V. Hines".

Jennifer V. Hines
Associate Professor, Chemistry & Biochemistry
Interim Associate Dean, Graduate College

Appendix 7

Letters of Support from Companies

March 10, 2009

Daniel R. Schoenberg, Ph.D.
Director and Professor
Molecular and Cellular Biology
The Ohio State University
333 Hamilton Hall
1645 Neil Avenue
Columbus, Ohio 43210-1218

Reference: **The Ohio State University Center for RNA Biology**

Dear Dr. Schoenberg:

Battelle is pleased to learn of intent of The Ohio State University to create a permanent Center for RNA Biology. We are pleased to have yet another opportunity to collaborate with OSU scientists on important problems.

As you are aware, Battelle is a major provider of toxicological services to the drug industry, the National Institutes of Health, particularly the National Toxicology Program, the Environmental Protection Agency, and the Biotechnology and Pharmaceutical Industries. As part of our toxicology business, we provide toxicogenomic services. We have a growing biomarker services business that prominently includes messenger RNA and micro-RNA expression profiling. RNAs have become important indicators of reactions to toxic substances and drugs. We also have a large practice in the study of infectious diseases treatments and countermeasures, for which infectious organism RNA is often a therapeutic target.

Our clients have come to expect scientific expertise appropriate to their project. Our past and current collaborations with OSU have enabled us to access experts in many fields, imaging technologies, safety pharmacology and physiology among them. We are happy to add RNA biology to the list of collaborations.

In fact, we have already collaborated with a member of the faculty of the OSU Center for RNA Biology, Dr. Tina Henkin, on a project to develop a new class of antibiotics. This project, conducted in cooperation with Ohio University and co-funded by Battelle and a State of Ohio Technology Action Fund grant, targeted a transfer RNA pathway. The project relied heavily on integration of infectious diseases expertise, synthetic chemistry and RNA biology. We believe that highly interdisciplinary projects like this one will lead to the greatest advances in pure and applied science.

Battelle looks forward to working more with you and your colleagues at the OSU Center for RNA Biology. We also welcome the opportunity to work with you and your staff on this important area of research that will bring additional talents, opportunities and collaboration to Central Ohio.

Sincerely,



Barbara L. Kunz
President, Battelle Health & Life sciences Global Business

March 13, 2009

Daniel R. Schoenberg, Ph.D.
Professor, Molecular and Cell Biology
The Ohio State University
366 Hamilton Hall, 1645 Neil Ave.
Columbus, OH 43210-1218
(614) 688-3102

RE: The Proposal to Establish the Center for RNA Biology at The Ohio State University

Dear Dan,

I am pleased to provide this letter of support and lend my expertise as an advisor in the effort to establish the Center for RNA Biology at OSU. It is important to note that OSU is home to many leaders in the field of RNA biology and creation of such a center would be of significant benefit to both the University and the State of Ohio. I am completely convinced that unifying the expertise in RNA Biology at OSU would facilitate discovery, job creation, entrepreneurial efforts and grant funding.

I look forward to working with you in advancing this effort.

Very best regards,



Adel Mikhail, Ph.D.
President and CEO
Phylogeny, Inc.

March 12th, 2009

Daniel R. Schoenberg, Ph.D., Professor
Molecular & Cellular Biochemistry
Director, Center for RNA Biology
The Ohio State University
Columbus, OH 43210-1218

Dear Dr. Schoenberg,

Sigma Life Science is proud to be an active supporter of the Ohio State University Center for RNA Biology. In recognition of the significant focus on the advancement and expansion of RNA research into various scientific disciplines, Sigma Life Science is pleased to provide seminars on advancements in RNA research and sponsor activities for the development of researchers in the field of RNA. We also appreciate the opportunity to present new products and emerging technologies to the greater community of life scientists at Ohio State under the auspices of the Center for RNA Biology.

The Center for RNA Biology's promotion of RNA-based research is of tremendous value to the research community. Sigma Life Science looks forward to providing continuous support for your efforts from multiple levels.

Sincerely,



Patrick Sullivan
Vice President
Sigma Life Science
Research & Development



March 9, 2009

Daniel R. Schoenberg, Ph.D.
Director & Professor
Molecular & Cellular Biochemistry
The Ohio State University
333 Hamilton Hall
1645 Neil Ave.
Columbus, OH 43210-1218

Dear Dan,

I am providing you with this letter in support of your desire to establish a formal RNA Center at The Ohio State University. As Ohio's membership and development organization, BioOhio strongly endorses this action. OSU has a national and global reputation for involvement in and leading state of the art research in the sciences. The proposed Center would strengthen this position. It would also I am sure lead to numerous technological advances with commercial potential which the University and Ohio would benefit from. In this period of plunging economies, such an investment looks to the future and strengthens Ohio's investment in a technologically rich society. We are happy to support this initiative.

BioOhio is a non-profit organization designed to build and accelerate bioscience industry, research, and education in Ohio.

Sincerely,

William C. Tacon, Ph.D., Senior Director, Workforce & Education, BioOhio

CAA ad-hoc committee on the
OSU Center for RNA Biology
11 September 2011

The CAA ad-hoc committee on the Center for RNA Biology was formed on October 19, 2010, in accordance with University Rule 3335-3-36 on Academic Centers and Institutes.

1. THE COMMITTEE

The membership of the ad-hoc committee on the Center for RNA Biology is:

Jim Cogdell, chair (Mathematics, CAA co-chair)
Ann Griffen (Dentistry, URC chair)
Mark Wewers (Pulmonary Medicine, URC)
John Wilkins (Physics, CAA)

2. THE CHARGE

The committee was charged to review the “Proposal to Establish The Ohio State University Center for RNA Biology”, submitted to OAA by Dan Schoenberg (Molecular and Cellular Biochemistry) on March 22, 2009, and to make a recommendation to CAA as to the formal establishment of the Center.

3. THE ACTIVITIES OF THE COMMITTEE

The committee received its charge from Randy Smith (OAA) on October 19, 2010. After receiving the charge, the committee proceeded to review the proposal and developed a series of questions for Schoenberg. The first series of questions were broad and concerned budget, space, grants, and reporting line. These were sent to Schoenberg on October 26. A second series of questions on smaller points of technical clarification about the proposal were sent on October 29.

The committee received Schoenberg’s responses on November 3. Following this, the committee tried to set up a meeting with Schoenberg and Peter March, Dean of the Division of Natural and Mathematical Sciences in the College of Arts and Sciences, through which the Center will report. Due to incompatible schedules, this meeting kept getting delayed. In the interim, Schoenberg and March met to discuss a firm MoU for funding the Center. It was decided that Schoenberg and March would draw up the MoU before they met with the committee, so that the budgetary issues would be on solid ground.

An MoU for the Center for RNA Biology Funding Plan FY 2012–FY 2015 was signed on May 18, 2011 by Peter March (Interim Dean, Division of Natural and Mathematical Sciences, College of Arts and Sciences), Joseph Steinmetz (Executive Dean, College of Arts and Sciences), Caroline Whitacre (Vice President for Research) and Catherine Lucy (Interim Dean, College of Medicine), and a copy was forwarded to the committee.

On July 14, 2011, the committee received a revised “Proposal to Establish The Ohio State University Center for RNA Biology” incorporating the MoU and its budget numbers.

On July 19, 2011, the committee met with Dan Schoenberg to discuss the Center proposal. Particularly the committee was interested in the state of the Center given the new funding numbers. After Schoenberg left the committee discussed his response and charged the chair to meet with Peter March to discuss the budget for the Center.

On July 27, 2011, the chair met with Peter March to discuss the Center budget. He reported back to the committee by e-mail.

4. STATUS OF THE CENTER

The OSU RNA Biology Group was organized in 1994 as a vehicle for RNA researchers at OSU to meet and share research interests. The OSU Center for RNA Biology was granted provisional Center status in 2009.

The scientific case for the formal establishment of a University Center for RNA Biology is quite strong. The RNA Biology Biology Group has grown from four labs in 1994 to 32 labs associated with the Center for RNA Biology today. Combined, these labs bring in approximately \$13.5 million in total (direct and indirect) costs to the University. Besides Schoenberg, among those in the RNA Biology Group are Tina Henkin (Robert W. and Estelle S. Bingham Professor of Biological Sciences, Chair of the Department of Microbiology, Fellow of the American Academy of Arts and Sciences, NAS Award in Molecular Biology), Anita Hopper (Chair of the Department of Molecular Genetics, AAAS Fellow, former President of both the RNA Society and the Genetics Society) and Karin Musier-Forsyth (Professor of Chemistry and Biochemistry, Ohio Eminent Scholar, AAAS Fellow). The prominence of the OSU RNA Biology Group is well recognized both within the University (see the letter of Carol Whitacre) and without (see the letter of Michael Culbertson from the University of Wisconsin).

Since being granted provisional Center status in 2009, the Center for RNA Biology Center has applied for three grants and was successful with two. They were one of six focus areas on a successful Howard Hughes Med-into-Grad Grant in 2010 and then received an NIH T32 Training Grant in 2011; they were unsuccessful with an NSF IGERT Grant application. The leveraging of the existence of the Center into external funding is one of the purposes of the establishment of Centers. In this regard, the Center for RNA Biology has already demonstrated its effectiveness.

The current budget for the Center for RNA Biology consists of \$40,000 in annual operating expenses, split evenly between the College of the Arts and Sciences (ASC), the College of Medicine (CoM), and the Office of Research (OR), plus \$10,000 from the CoM as an administrative supplement. There is also support for three RNA Graduate Fellowships, funded at the level of \$40,000 each, with two funded by the ASC and one by the CoM. The continuing funds are used to support the RNA Biology Seminar (ongoing since around 1995)

and to help support the Midwest (Rustbelt) RNA Meeting (which was founded in 1998 by Dan Schoenberg, Director of the Center for RNA Biology).

The College of the Arts and Science and the College of Medicine recognize the prominence of the RNA Biology Group and believe that the Center for RNA Biology is well aligned with the developing Strategic Plan of the University. The expectation is that this will be a quite successful Center. The funding for the Center for RNA Biology is to continue at the current level for the next three years. The current funding level is more indicative of the financial situation of the University and the recent changeovers is the administration of both the ASC and the CoM than the overall confidence in the Center for RNA Biology. The MoU simply represents a continuation of the status quo for the next three years. The ASC is working on a funding model for Centers that would combine a baseline of central funding supplemented by grant IDC. Given its success in obtaining outside funding to date, the OSU Center for RNA Biology should flourish under such a model.

The issue of contiguous space seems to have short term and long term answers. The Center for RNA Biology should be able to arrange a home space for the Center in Aronoff Laboratory from space negotiations with Molecular Genetics and Microbiology. These departments are well represented in the RNA Biology Group. There could be plans for more contiguous lab space negotiated as part of a more long term (i.e., post CBEC) space plan for the College. To achieve this, the Center will want to begin discussions with the ASC on long range plans for the Center in terms of both funds and space.

5. RECOMMENDATION

On the basis of the above analysis, the Committee recommends that the OSU Center for RNA Biology be established as a University Academic Center in accordance with University Rule 3335-3-36.