



THE RNA INSTITUTE
COLLEGE OF ARTS & SCIENCES UNIVERSITY AT ALBANY

In the Loop

December 2018



Dr. Andy Berglund, Director of the RNA Institute

Message from the Director Fall 2018

We are pleased to bring you the reimagined and relaunched *In the Loop* newsletter from The RNA Institute. This newsletter will serve as a tool to update the RNA community on the exciting developments both in The RNA Institute as well as in our affiliated Departments and Institutions. In this issue, we feature a look back at the evolution of the Hudson Valley RNA

community into the dynamic hub for research, innovation and training that it is today as well as some key upcoming events to note in your calendars and our plans for future issues.

The RNA Institute is positioned to make significant contributions towards understanding the role of RNA in fundamental biological processes, developing RNA as a tool for science and harnessing this knowledge to improve human health. The Institute brings together teams of researchers from multiple Departments and Universities with expertise in Biology, Bioinformatics, Chemistry, Computation, Engineering, Genetics and Structural Biology to achieve our goals.

Training the next generation of RNA scientists with a commitment to improving the number of individuals from under-represented groups is a priority for the Institute. The driving force behind the RNA Institute is our active researchers from multiple Universities who share the common goals of providing outstanding mentoring to our trainees and using the advanced technologies in the Institute to make new discoveries centered around RNA Biology and Chemistry. The long term goal of the Institute is to translate our scientific discoveries into improving the human condition.

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Message from the Director Fall 2018

Continued from front page:

One of the keys to our success is active engagement with the community of RNA researchers in the Institute, at the University and throughout the capital region and beyond. Collaboration with this well-established community is one of our most valuable resources, and I look forward to The RNA Institute continuing to play a key role supporting the community.

I want to highlight a few benefits for members of our Institute. The Institute will continue to provide funding for trainees associated with the RNA Institute to present their research at conferences. See the [Student Travel Award](#) page of our website for details and application instructions. The [RNA Café](#) will continue to bring in speakers to expose our trainees to careers beyond academia. For example we are jointly hosting the science writer [Ed Yong](#) for his visit to campus on February 19th. On March 21-22, we are hosting the [6th Annual RNA Symposium](#): The Language of RNA in Disease and Development.

New plans for the Institute include; 1) hiring a staff scientist who will bridge research groups and increase the number of submitted multi-PI grant proposals, provide grant writing support to trainees and run an internal Institute grant review panel, 2) developing a fellowship program that will provide PhD students with experience through internships outside academia, 3) provide funding for PIs to purchase items not easily bought with grant funds (i.e. computers) and 4) support undergraduate researchers in the summer with a preference for underrepresented minorities. These and other plans for the Institute will be shared on the website.

On a personal note, I appreciate the warm welcome my lab and I have received from the community and look forward to working with all of you to take The RNA Institute to the next level of excellence.

Sincerely,



Call For Abstracts

6th Annual RNA Symposium

The Language of RNA in Disease and Development

March 21-22, 2019

**The RNA Institute, University at Albany
Performing Arts Center**

The RNA Institute's 6th Annual RNA Symposium is entitled The Language of RNA in Disease and Development. It brings together scientific experts, students and industry professionals who conduct basic, applied and translational research in RNA. This year's meeting highlights multi-disciplinary work being done in and around RNA science.

The RNA Symposium provides a forum for faculty, students and industry representatives to present their findings and network with colleagues. It has attracted Nobel Laureates, as well as National Academy Members, distinguished Howard Hughes Medical Institute Principal Investigators, renowned university professors, industry scientists and medical doctors, among others from around the world.

The 2019 Symposium includes talks from Craig Mello, Eliezer Calo, Matt Disney, Wendy Gilbert, Eric Kool, Cara Pager, Gisela Storz, Charles Thornton, and Elçin Ünal, as well as presentations by faculty, postdocs, and students. Hands on Workshops will also be offered by RNA Institute staff and affiliated faculty on Thursday, March 21. Workshop registration is available on following topics:

- Gradient fractionation
- RNA simulations
- Epitranscriptomics
- Sequencing technologies
- Nanoswitch-mediated detection of micro-RNAs

Please see visit the website below for registration and abstract submission details.

<https://www.rna.albany.edu/6th-annual-rna-symposium/>



Upcoming Events

RNA Café

The RNA Café is an invited seminar series exposing students and postdocs to non-traditional science careers by engaging in a roundtable discussion with credentialed scientists who have pursued careers outside of academia. Discussion topics cover an array of subjects related to the speaker(s) career path, personal experiences and interests. Typically RNA Café sessions address specific aspects of academic training, career goals, aspirations and tips on becoming successful in reaching goals and achieving career stability. To be included in the invitation list, or if you would like to be an invited speaker or suggest a speaker, please contact us at rna@albany.edu.

Marina Irène Ostankovitch



Development Editor, Wiley

*Taking an Alternative Career Path with a
PhD in Life Sciences*

Tuesday December 11th 2018

4:00 PM

LSRB, Room 1143

Ed Yong



The Atlantic

Tuesday February 19th 2019

4:00 PM

D'Ambra Auditorium, LSRB

Hudson Valley RNA Club

The Hudson Valley RNA Club (HVRC) seeks to create a community and a scientific forum for students, postdocs and scientists engaged in RNA-related research in the Hudson Valley region and beyond. The club is intended to promote interdisciplinary conversations between researchers pursuing biochemical, structural, computational, or systems approaches such that their collaborative efforts would lead to critical breakthroughs in important areas of RNA research like RNA structure, RNA catalysis, RNA-protein interactions, RNA interference and RNA genomics.

The Hudson Valley RNA Club meets the **third Tuesday of every month at 4:00 PM in the LSRB, room 1143**. See below for upcoming meetings.

Date: December 18, 2018

Speakers: Colin Echeverria Aitkin, Ph.D.

Affiliation: Vassar College

Ryan McDowell (McDonough Lab)

Affiliation: UAlbany

Date: January 15, 2019

Speakers: Lifeng Zhou (Halvorsen Lab)

Marissa Louis (Pager Lab)

Affiliation: UAlbany

Date: February 19, 2019

Speaker: Botros Toro (P. Li Lab)

Affiliation: UAlbany

Date: March 19, 2019

Speakers: Justin Waldern (Belfort Lab)

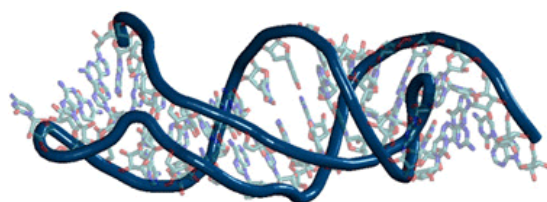
May Lee (Melendez Lab)

Affiliation: UAlbany

Date: April 16, 2019

Speaker: Casey Warszycki (McDonough Lab)

Affiliation: UAlbany



A Hub for All Things RNA

By Arun Richard Chandrasekaran

Going through *the loop* of the SUNY Albany campus, one sees the grey and glass Life Sciences Building housing The RNA Institute, aimed towards understanding the role of RNA in fundamental biological processes, developing RNA as a tool for science and harnessing this knowledge to improve human health.

While the Institute has faculty of its own, its strength lies in affiliated researchers from around the area in multiple departments and schools. The community of RNA researchers can be traced back more than 30 years to a confluence of research activity in this emerging field. The community coalesced into the [Hudson Valley RNA Club](#) (HVRC), a “free-standing, grassroots level organization”, says [Marlene Belfort](#), currently Distinguished Professor of Biology at SUNY Albany (then at the Wadsworth Center, New York State Department of Health). She played an integral role in bringing together the RNA researchers in the capital district.

The HVRC was started in 2007 with joint efforts from Marlene, [Joan Curcio](#) (Research Scientist at the Wadsworth Center and Professor of Biomedical Sciences at SUNY Albany) and [Scott Tenenbaum](#) (Associate Professor of Nanobioscience at SUNY Polytechnic Institute).

With sponsorship from [The RNA Society](#), the HVRC is one of many “RNA salons” throughout the world that bring together researchers in the RNA field to share ideas and collaborate. “We had a loosely organized but enthusiastic group of people who came together through the HVRC” says Joan, thinking back on the early days of the Club. “We had a lot of inter-institutional speakers”. In addition to the many schools and departments here at the University at Albany, including Biology, Chemistry, Biomedical Sciences and Nanobioscience (now part of SUNY Polytechnic Institute); the reach of the RNA community extends as far as the University of Rochester, involved in conference co-sponsorship in the early years, the Wadsworth Center, Albany Medical College, Sienna College, Williams College, Skidmore College and Rensselaer Polytechnic Institute (RPI). “We kicked it off with an annual symposium and a series of talks... basically just talking RNA” said Scott. “The idea of The RNA Institute was borne out of this, to centralize [efforts] and work as a group”, he added.



Photo from the 1988 Albany conference 'RNA: Catalysis, Splicing, Evolution'.

The research community's eagerness to discuss science is reflected by the special issue in the journal *Gene*, which requested each member to contribute a new manuscript. “Given the novelty and excitement of the work, we thought that a record of the Conference should be made available”, write the editors in the preface of that special issue.



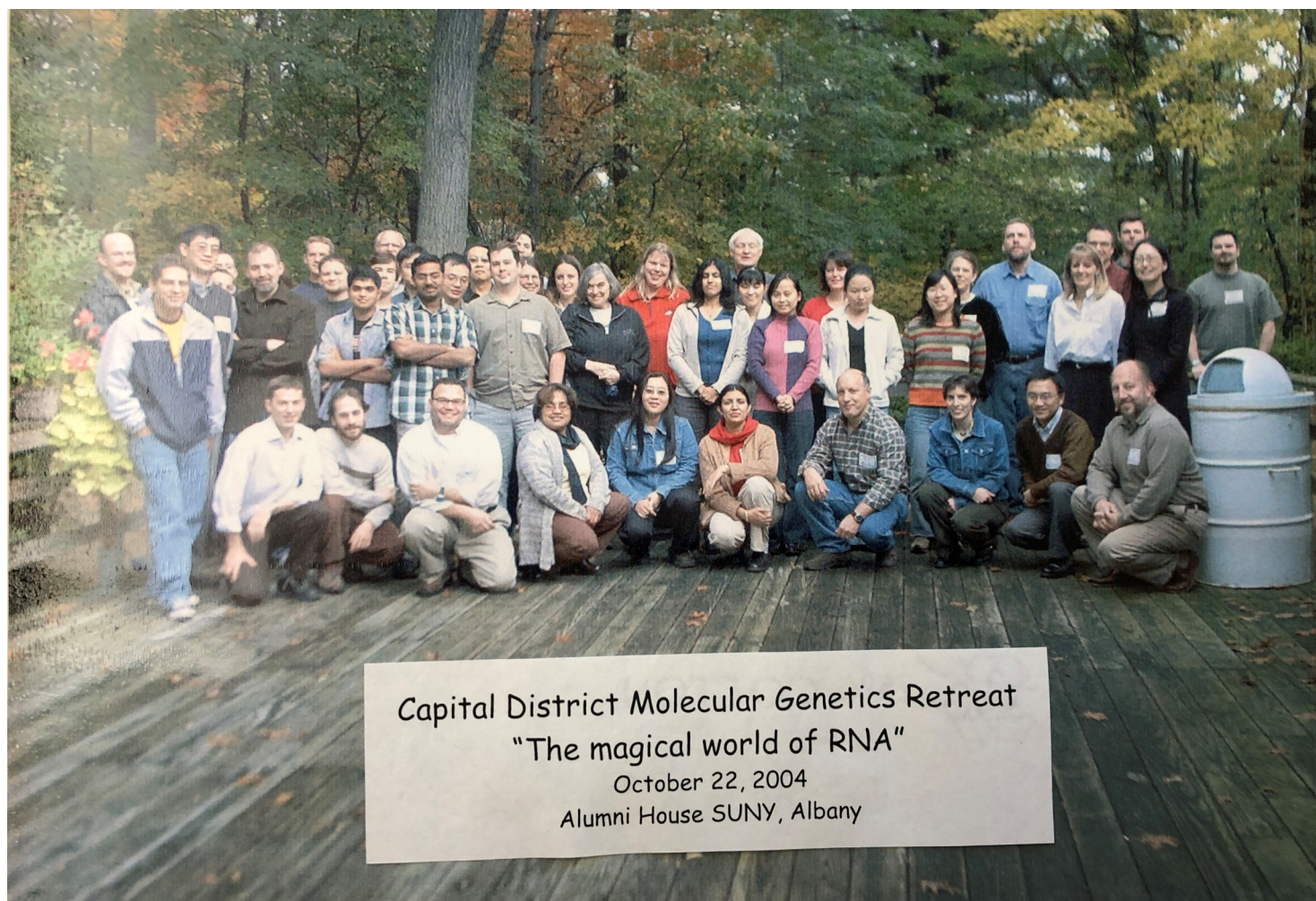
Top row (from left): Bernard Dujon~, John Belote, Thomas Cech*, Christine Guthrie^, Olke Uhlenbeck^, Norman Pace^, John Abelson^, Philip Sharp*. **Middle row:** Sidney Altman*, Hugh Robertson, Alan Weiner, John Boothroyd^, Nancy Maizels, Francois Michel. **Bottom row:** Michael Green^, Susan Wessler^, Michael Rosbash*, Marlene Belfort^, George Bruening^, David Shub, Philip Perlman. *Nobel Laureate (4), ^National Academy of Sciences member (13), ~ French Academy of Sciences member (1).

RNA Newsletter Feature continued

In 2010, the newly constructed Life Sciences Building needed occupants, and many potential researchers had a background in RNA-based research. "RNA emerged as a hot area", says Scott on the presence of a wider RNA community in the area. So when SUNY Albany had an initiative to begin a research institute, it focused on RNA research. [Paul Agris](#), an expert in RNA modifications, became the founding director of the Institute. Dan Fabris was the next RNA Institute hire, with Paul and Dan having appointments in Biological Sciences and Chemistry. Shortly after, Marlene moved from the Wadsworth Center to SUNY Albany, being affiliated with the Department of Biological Sciences as well as The RNA Institute.

With new recruits and the establishment of instrumentation facilities and research labs, the Institute harnesses expertise in biology, bioinformatics, chemistry, engineering, genetics and structural biology. The RNA Institute is aimed toward knitting together the research community in the capital district and surrounding areas, providing a hub for collaborations, a

resource center for continued research and an active discussion ground for science, technology and policy. The Institute hosts [mfold](#), one of the oldest web servers in computational molecular biology, written by [Michael Zuker](#), then a professor of mathematics at RPI. "That's how you get on the map. You have a resource that's used internationally" says Scott. The RNA Institute also focuses on training the next generation of researchers through the [RNA fellows program](#). Selected graduate students are trained "to translate advances in RNA science into beneficial technologies". The Institute recognizes the importance of multidisciplinary science and collaborative efforts and aims to work alongside the HVRC in exploring the scientific needs of the community. As Marlene put it, "The HVRC and The RNA Institute are mutually reinforcing entities". The strength of this community and their combined efforts are empowering the Institute to train the next generation of RNA scientists.



Capital District Molecular Genetics Retreat
"The magical world of RNA"
October 22, 2004
Alumni House SUNY, Albany

Training Opportunities

RNA Training Program

In collaboration with The RNA Institute, Biological Sciences, Biomedical Science and Chemistry, this novel training program, RNA in Health and Disease, provides a multi-disciplinary curriculum with a focus on RNA and its health-related benefits. We aim to develop our future science leaders by providing graduate students with a comprehensive access to faculty, techniques and collaborations within UAlbany and the RNA Institute. UAlbany and The RNA Institute are uniquely positioned to provide a transformative educational experience for graduate students interested in RNA biology, biophysics and chemistry, RNA in disease and RNA-targeted therapeutics.

In this program, students will not only be able to develop a basic understanding of RNA science, but also be able to transform knowledge into therapeutic and technical applications.

In addition students will opt for practical experiences in business entrepreneurship and/or communication. We will thus ensure a broad graduate experience that prepares our students for a wide range of career options.

Undergraduate Research Involvement

To learn about doing undergraduate research through a specific department, please use the resources and channels outlined below:

The Chemistry department tracks which researchers are open to working with undergraduates. Please contact Brian Gabriel or Dr. Paul Toscano for further information and assistance in locating an appropriate lab. For-credit options are also available.

The Biology department utilizes a specific for-credit course (Bio399 or Bio499) called "Intro to Undergraduate Research." Please take the time to learn about how the course works and to locate faculty members who have agreed to supervise an undergraduate. Please note that prospective undergraduate researchers must first reach out to and find a faculty member willing to accept them into their lab before being admitted into the course.

The Physics department: visit the department website to learn more about researchers that accept undergraduates in their labs and can assist with for-credit research possibilities as well.

<https://www.rna.albany.edu/undergraduate-research-involvement/>

Student Travel Awards

Graduate students and post-docs are eligible to receive a maximum of \$600 via the [Student Travel Award](https://www.rna.albany.edu/student-travel-award-full-instructions/) program. Applicants must have received commitments from other University sources (such as the faculty mentor, home department or school) to cover the remaining costs of the conference or seminar. Only one award will be awarded per fiscal year (July 1- June 30) per awardee. Full details can be found on our webpage at:

<https://www.rna.albany.edu/student-travel-award-full-instructions/>.

Deadlines for submissions are listed below.

Application Deadline	Sept 19th	Jan 2nd	March 23rd	June 15th
Award Date	Oct 1st	Jan 15th	April 1st	July 1st
Eligible Conference dates	Oct 1 - Jan 14	Jan 15 - Mar 31	April 1 - June 30	July 1 - Sept 30

Recent Recipients of RNA Student Travel Awards

Fusheng Shen, Department of Chemistry, Dr. Jia Sheng's lab. Attended the Northeast Nanomaterials Meeting (NENM), June 1-3rd, 2018 in Lake Placid, NY. Poster presentation.

Rebecca D'Esposito, Department of Chemistry, Dr. Dan Fabris' lab. Attended the American Society of Mass Spectrometry June 3-7th, 2018 in San Diego. Poster presentation.

Phensinee Haruehanroengra, Department of Chemistry, Dr. Jia Sheng's lab. Attended RNA Therapeutics: From Base Pairs to Bedsides June 28-29, 2018 in Worcester, Massachusetts. Poster presentation.

Gaston Bonenfant, Department of Biological Sciences, Dr. Cara Pager's lab. Attended the 37th Annual Meeting for the American Society for Virology, College Park, MD, July 14-18, 2018. Oral presentation.

Rachel E. Netzband, Department of Biological Sciences, Dr. Cara Pager's lab. Attended the 37th Annual Meeting for the American Society for Virology, College Park, MD, July 14-18, 2018. Oral presentation.

Marissa E. Louis, Department of Biological Sciences, Dr. Cara Pager's lab. Attended the 37th Annual Meeting for the American Society for Virology, College Park, MD, July 14-18, 2018. Poster presentation.

Sangeetha Selvam, Department of Biological Sciences, Dr. Gabriele Fuchs' lab. Attended Translational Control Meeting at Cold Spring Harbor Laboratory, Sept 4-8th, 2018. Poster presentation.

Justin Waldern, Department of Biological Sciences, Dr. Marlene Belfort's lab. Attended the Transposable Elements meeting at Cold Spring Harbor Laboratory, November 1-4th 2018. Oral presentation

Timothy Czajka, Biomedical Sciences Department, Dr. Nicolas Mantis' lab. Attended the Antibody Engineering and Therapeutics Conference in San Diego December 9-13th 2018. Poster presentation.



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The Language of RNA in Disease and Development

Thursday, March 21 and Friday, March 22

Distinguished Keynote Speaker: Thursday, March 21

Craig Mello

University of Massachusetts Medical School

Keynote Speakers: Friday, March 22

Eliezer Calo Massachusetts Institute of Technology

Matt Disney The Scripps Research Institute

Wendy Gilbert Yale Center for RNA Science and Medicine

Eric Kool Stanford University

Cara Pager The RNA Institute, University at Albany

Gisela Storz National Institutes of Health

Charles Thornton University of Rochester Medical Center

Elçin Ünal University of California, Berkeley

Workshops: Thursday, March 21

Gradient fractionation, RNA simulations

Epitranscriptomics, Sequencing technologies,

Nanoswitch-mediated detection of micro-RNAs

Future Newsletters

In future issues of *In the Loop*, we plan to do in-depth profiles on the work of labs affiliated with the Institute, focusing on PIs and their postdocs and graduate students. We will also keep you informed of upcoming meetings and other RNA community events.

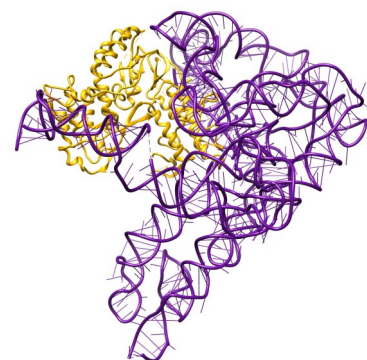
We would like to use this newsletter as a forum to celebrate the accomplishments of the RNA community, so please share with us your successes! We would love to highlight grant awards, publications, conference presentations and anything else that you feel represents the success of your work.

Any thoughts or ideas for future Newsletters are encouraged and welcomed.



Qu et. al. 2016
Group II intron ribonucleoprotein

Thanks for being
In the Loop!



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<https://www.linkedin.com/groups/6562019>



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