RNA Society Newsletter August 2015

RNA Society

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From the Desk of the President, Sarah Woodson

As this 20th year of the RNA Society continues, it is a



great time to look back and remember highlights from our anniversary celebration. I first want to thank **Tim Nilsen** for conceiving and editing the anniversary edition of the RNA journal, which was published in April. The many perspectives by RNA scientists offer an appetizing

and informative read – a mix of zeitgeist, family album, and futurerama. I also want to thank Tim for his twenty years of exceptional leadership at the journal. (continued on p^2)

In this issue :



The second event of the year was the annual meeting of the RNA Society in Madison, WI, May 26-30. All 870 people who attended will agree with me that RNA 2015 was a fantastic meeting. I wish to thank the organizers **David Brow, Matt Hentze, Amy Pasquinelli** and **Anna Pyle** for an exciting scientific program and inspiring anniversary retrospective.

The meeting started out with three superb keynote talks by Harry Noller, Narry Kim and Elena Conti. Harry Noller discussed his work on how the ribosome moves tRNAs during protein synthesis. Narry Kim described her work on the biogenesis and proof-reading of micro-RNAs. Elena Conti showed how the structures of exosome complexes produce different pathways of RNA turnover. All three lectures provided inspiring examples of how much progress has been made over the past 10-20 years. When the first RNA Society meeting first occurred 20 years ago, contemplating the structure of the ribosome was like looking at Mount Everest from base camp, the first micro RNA had just been discovered in worms and the knowledge about the exosome allowed it to be represented by "Pac-Man".



Of course, good scientists look forward more often than they look back, and this was as true in the keynote talks as in the rest of the meeting. Wednesday morning started off with a plenary session on ribozymes and riboswitches. This was followed by sessions on pre-mRNA splicing, noncoding RNAs (long and short), mRNA turnover, RNA modification, ribosome function and RNP biogenesis. Although these session topics haven't changed much over the years, the talks themselves tell of a revolution in RNA biology brought on by stunning advances in high-throughput sequencing, proteomics, single particle biophysics and cryoelectron microscopy. For me, a scientific highlight was the cryo-EM structure of the U4/U6.U5 trisRNP component of the yeast spliceosome presented by **Thi Nguyen** from **Kiyoshi Nagai's** lab. This was just one of many fantastic examples of



teams using biophysical techniques and genome-wide methods to push back the boundaries of the **RNA** known World. One can be forgiven for thinking our world is run by RNA as

cheekily proclaimed by **Daniel Kiss's** winning T-shirt design!

New experimental tools are thrilling, but they also bring challenges of data validation, analysis, data sharing, and computational modeling. These are areas in which RNA Society members can (and should) take the lead. As in past meetings, RNA 2015 included a number of well-attended workshops on focused topics such as RNA and disease, modeling, emerging techniques and therapeutics. Workshops can offer a means for exchanging techniques and discussing standards for data reporting or analysis. Meeting organizers usually welcome suggestions for future workshop topics, so if you have an idea for a workshop, contact an organizer of an upcoming meeting to let them know this is something that interests you (see p17 for organizers of RNA2016 and RNA2017).

Although the science at RNA 2015 was great, the meeting also featured several special events. On Wednesday evening, **Jon Lorsch** addressed the **Science and Society Dinner**, outlining his vision for new funding mechanisms aimed at alleviating



the competition for strained research dollars. Jon is currently the Director of the National Institute of General Medicine, the primary funding agency for basic biomedical research in the US. He is also known to many at the meeting for his work on eukaryotic translation initiation and has been a member of the RNA community for many years. His remarks were widely appreciated by the audience and stirred many further conversations about the future of science research.

On Thursday afternoon, founding members of the RNA Society recalled the "history of RNA research" and their personal experiences as young scientists. This memorable event was my favorite



part of the meeting and a reason I treasure being a member of the RNA Society. In what other discipline will the most distinguished scientists willingly share their struggles as well as joys? Yet this shared experience is what makes the Society our repository of scientific wisdom and our place for gaining lifelong colleagues and friends. Even more special was the accompanying slide show of old RNA Society members photos! A huge round of thanks to **Marv Wickens** for collating this fantastic set of photos. It was truly wonderful to see the faces of all the various people who contributed to the Society along the way and it was greatly enjoyed by everyone at the meeting.

An important function of the RNA Society is to recognize our members who have made outstanding contributions to the Society and to RNA research. The 2015 Awards Ceremony was hosted by our CEO, **Jim McSwiggen**, and myself. **David Lilley** (University of Dundee) received the **RNA Society Service Award**, in recognition for nine years of service as the Chair of the Meetings Committee. David was instrumental in expanding the international reach of the annual meetings, with the first meeting in Asia (Kyoto 2011) and several meetings in Europe.

Anita Hopper (Ohio State University) received the RNA Society Lifetime Achievement Award for her groundbreaking work on tRNA synthesis, export and turnover. Anita inspired the audience with her account of early work on tRNA processing and her many fruitful interactions with collaborators and scientists in her lab. Anita noted the importance of the annual RNA meetings, showing a photo of her office shelf with the abstract books from all of the past meetings. This astonished me. There is a shelf like that in my own office.

Although it is fun and inspiring to remember how far RNA science has come in the past 20 years, the talks and posters by postdocs and graduate students provide the real energy and excitement of the RNA meetings (with plenty of beverages and snacks to keep the talk going). Achievements of our junior scientists were recognized by a number of poster awards sponsored by Lexogen, New England **Biolabs** and the **RNA Society**, as well as the **RNA** Society Scaringe Awards. Kudos to graduate Samuel Sternberg and Katherine students Warner, and postdoctoral fellows Olga Anczukow-Camarda and Schraga Schwartz for receiving this year's Scaringe Awards in recognition of their outstanding contributions to RNA research (see p 10)! After a week of non-stop science, the Saturday evening party was a lot of fun with dancing and "Gomeroke" to music by the Gomers band. Thank you, David Brow and all the organizers -- the band was great.

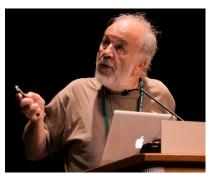
Although RNA 2015 was a special occasion, next year's organizers are already hard at work on scientific sessions and special activities for RNA 2016. I look forward to seeing all of you in Kyoto! Sarah Woodson



RNA 2015 The 20th Annual Meeting of the RNA Society

RNA 2015: Looking backward and forward

The goal of the organizers of RNA 2015, Amy, Anna, Matt and myself, was to make the 20th meeting a special one. With much help from **Kristin Scheyer, Mary McCann**, and the rest of the **Simple Meetings** crew, I think



we succeeded. The meeting was packed with memorable events, from the captivating keynote talks by **Harry Noller, Elena Conti**, and **Narry Kim** on Tuesday evening, to the wild "Gomeroke" session on Saturday night. In addition to the exciting, cutting-edge science that we've all come to expect at RNA Society meetings, we planned time for interaction and introspection.

The History of RNA Research panel discussion on Thursday

afternoon provided insights into the challenges that were overcome by the founders of the Society, and conveyed the message that persistence is an important quality for scientists who are trying to push against the boundaries of our knowledge. Those who missed the session or



would like to view it again can access a video of the panel discussion at the following URL: <u>http://ics.webcast.uwex.edu/Mediasite7/Play/b81b58e8b88145acaf107e36f0cd89d31d</u>

We were treated to beautiful, pastoral weather for the lakeside picnic on Thursday evening. In contrast, the weather Saturday morning was much more dramatic, with sailboats bobbing like corks on Lake Mendota! Perhaps the most memorable aspect of the meeting for me was the numerous conversations with colleagues old and new. The receptions, meals, and poster sessions





provided many opportunities to interact. I hope that everyone who attended enjoyed their time in Madison and left the meeting invigorated with new ideas and optimism. Rock on, RNA!

-Dave Brow



Summary of Junior Scientist Events at RNA 2015

After a month of reflecting, we are just as excited about our events at RNA 2015 as we were during the conference- the junior scientist events were extremely well attended and enjoyed this year!

To kick off the conference, more than 50 graduate students and postdoc members met for a tour of the Wisconsin State Capitol building on Tuesday afternoon. We learned about the history of Wisconsin and the beautiful architecture of the Capitol building, and we also learned about each other! On the observation deck of the Capitol, the ice was broken as everyone volunteered to take pictures of each other (in lieu of selfies). After the tour, we headed to the Great Dane Pub and sampled some excellent microbrews before heading back to Memorial Union for the opening night events.





On Wednesday we put on a "**Careers in RNA Science**" panel during the workshop session. This panel gave junior scientists the opportunity to meet and ask questions of six successful professionals who work outside of research academia. **Molly Nyholm** from Cellscript and **Brett Monia** from Isis Pharmaceuticals shared their insight into obtaining a position and success in industry positions and highlighted the differences between growing and established biotech companies. **Victoria Sutton** from the Wisconsin Alumni Research Foundation (WARF) fielded questions about her work as an intellectual property associate and the patent process. **Crystal Young-Erdos** from Eckerd College gave tips on how to obtain a faculty position at a liberal arts college and how to establish a research

program with undergraduates. **Peter Watson** (a former Junior Scientist Committee member) visited from McKinsey & Company and enlightened us about consulting as a career path and how his PhD training prepared

him for the critical thinking necessary for success in the consulting field. **Michael Bender** gave insight into working for NIH and the differences between working in academia and government. We are extremely grateful to our panel participants for their receptiveness to questions, for taking time out of their day, and for their infective enthusiasm about their respective careers.

Thursday evening following the History of RNA Panel, we flocked to Tripp Deck for the annual Junior Scientist Social. As usual, it was



very well attended. We were extremely fortunate to have guests of honor at this social, as many of the participants in the History of RNA Panel attended and imbibed alongside the graduate students and postdocs who look up to them. Many new friendships were crafted and connections strengthened during the social.



At the end of the conference, we continued to make memories as many of us conquered our stage fright and participated in "Gomeroke". Many thanks go to **Dave Brow** for procuring the band and for commencing the closing night festivities with his rendition of "The One I Love" alongside **Matt Hentze**.



Wrapping up RNA 2015 is bittersweet, as it marks the end of **Mike Meers'** term on the Junior Scientist Committee. Mike has been an indispensable member of the committee for the last two years and has been vital to the success of our events at RNA 2014 and RNA 2015. He has taken the lead on organizing key events like the Career Workshop and has been instrumental to the planning process with his insight, organization, and creativity. Thank you, Mike, for your service to the RNA community and to furthering junior scientist events! We wish you the best in your future endeavors and hope to see you next year.

We'd like to reiterate our thanks towards the many people who made RNA 2015 a success, including the History of RNA panel participants, the Career Workshop participants, **Kristin Scheyer** and **Mary McCann** from **Simple Meetings**, the RNA 2015 organizers, the RNA Society Executive Committee, and our faculty advisors **Katrin Karbstein** and **Sam Butcher**. Most of all, we'd like to thank our fellow junior scientists for attending all of our events and bringing so much excitement and energy to the meeting. We're looking forward to Kyoto 2016, and we hope to see you there!

You can get in touch with us via email (junior_scientists@rnasociety.org), and you can stay in touch with us and the community of young RNA scientists throughout the year with social media:

- **F** RNA Society Junior Scientists
- 🥑 @jrRNAscientists

Linked in. RNA Society Junior Scientists

Allison Didychuk (Graduate Student Representative, UW Madison)
Sebastian Markmiller (Postdoc Representative, UCSD)
Phil McCown (Postdoc Representative, Purdue University)
Michael Meers (Grad Student Representative, UNC Chapel Hill)



RNA Society Awards Lifetime achievement in Science Award: Anita Hopper

Sarah Woodson, RNA Society President, introduced the 2015 RNA Society Lifetime Achievement awardee, Anita Hopper. Sarah

Achievement awardee, pointed out that Anita has fulfilled many roles in the Society and has now won every award the Society has to offer, having won the RNA Society's award for Outstanding Service to



the Society in 2009. Anita started with a thank you to the Society.

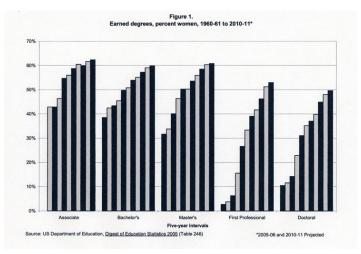
Anita then went on to describe her 40+ years of loving tRNA, well evidenced by the meeting abstract books that line her office shelves. These books reflected her career path – and that of the Society in this anniversary year. The abstract book line-up started with her first RNA Processing meeting at Cold Spring Harbor meeting in 1982. She has the abstract book from the "transitional" RNA meeting called "The RNA Processing Meeting of the RNA Society" in 1994, the official start of the RNA Society meeting in Madison. Her line up reflects the 20 years of RNA Society meetings. She then reminded us that she started working on and with RNA a lot earlier than her presence at the RNA Meetings.



Anita attributed her long life in RNA to a "perfect storm" created by two separate and unrelated, but highly influential eras. In retrospect these were really critical to her entry into science. In 1957, the USSR successfully launched Sputnik. This was the first satellite put into orbit around the

Earth. Sputnik really surprised the world, and particularly the USA and initiated a science race in general and a space race in particular between the USA and then USSR. Sputnik led to a dramatic increase in federal funding for science and particularly in biomedical areas. With the influx of federal dollars to support research, it was a great time to go in that direction.

In addition to the increase in science funding, the 60s and 70s marked an era in which more women moved into the area of science. Whereas in 1950s, women earned only 40% of the BS degrees awarded and only 10% of doctoral degrees, today, women represent the 60% of BS degrees awarded and



nearly 50% of the PhDs. This has been great progress but it meant that when Anita started along this pathway, things were very different for women in science. While today, 40% of the tenure track faculty are women those women took a very different path and worked hard with no role models and no guarantees they would ever get a position that was open to, if not expected of, their male peers.

When Anita started working on her bachelors degree in 1963, there were no female faculty at the University of Illinois in Chicago. As a graduate student at University of Illinois in Urbana, there were no female faculty in the Departments of Microbiology or Botany or Biochemistry. Despite having no role models (and only a few female contemporary grad student colleagues) she persisted



because she knew she loved what she was doing. Her position as a post-doctoral scholar took her to University of Washington in Seattle. Anita stressed the importance of mentors in her success, for both her bachelor's degree as well as her PhD. She was

...meeting other attendees at conferences, people she would soon see as her peers and colleagues (and competitors!) particularly influenced by her postdoc advisor, **Ben Hall**, who was a

real pioneer in yeast genetics at U Washington in Seattle. This clearly was a case of the right place at the right time, with the right people at the bench beside her.

When she started her postdoctoral work, there were no pipetmen, no restriction enzymes, no labeled probes and Southerns and Northerns had yet to be discovered. There were protocols and methods that were known to work – but no kits to streamline and provide all materials in one place. Anita particularly acknowledged the creativity of Maynard Olson her collaborator/co-conspirator on some of her early studies.

Anita reminded some of us – and described for the younger scientists in the audience – that "back then" they had to make probes from scratch. In her case, this involved her and **Maynard Olson** taking tRNA to Vancouver, radioactively labeling it there and "smuggling" it back across the border to Seattle to complete the experiment. In the lab they then would digest total genomic yeast DNA with the enzyme EcoRI – the only enzyme available at the

"being at the right place at the right time with the right people at the bench beside her" time (which had to be handdelivered from UCSF!). They ran an agarose gel to resolve

the digested DNA fragments. They then cut the agarose gel into slices, eluted the DNA from individual slices, bound the DNA to nitrocellulose and hybridized the labeled tRNA probe to the nitrocellulose. As predicted by the yeast geneticist, **Don Hawthorne**, the data indicated there were several genes encoding tyrosine tRNA. Eventually Southern blots were discovered; so, Maynard Olson and co-workers in the Hall lab were able to definitively demonstrate that there really were 8 genes that encoded tyrosine tRNA in yeast.

By the time she was ready to start looking for a job in 1974, many places wanted to hire female faculty. Anita characterized her entire scientific career as being in the right place at the right time. One part of this was the significant increase in tenure track positions for women that happened to occur just as she was ready for such a position. However, the other equally significant part was the growth in science as a whole, and RNA as a new field, specifically. By 1974 she was well trained, had made an impression on peers and colleagues and was receiving phone calls from people *asking* her to apply for jobs. Right time, right place!

Interactions ... cemented friendships and collaborations which continue to this day.

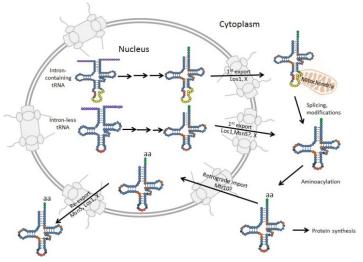
Anita attended her first tRNA meeting in 1975, the Conference on Genetics entitled and Biochemistry of Suppression. Other attendees included John Abelson, Sidney Altman, Christine Guthrie, Donald Hawthorne, Tetsuya Ozeki, Susan Liebman, Dieter Söll, Bill McClain, and John Carbon; people she would soon see as her peers and colleagues (and competitors!) in the yeast field. At that meeting, she heard about E. coli mutants defective in tRNA processing at high temperatures. Being well grounded in yeast and tRNAs, she started to do similar experiments in She started screening yeast temperature veast. sensitive mutants and assaying for an accumulation of precursor tRNAs at non-permissive temperatures. This led to her discovery of *rna1-1* which was later shown to be-defective in tRNA intron processing.

Others in the Hall and Abelson labs showed that tRNAs in yeast have introns, that the introns are transcribed and that the can be used in an in vitro reconstitution assay to reconstruct the splicing pathway. Interactions between Anita and Guthrie, Abelson, Phizicky, Engelke, and Trotta in the Abelson lab cemented friendships and collaborations, which continue to this day.

Los1 is another gene that Anita's lab discovered and it was found to encode a tRNA nuclear



exportin. In 1998 at the RNA Society meeting, the role of this gene and its cellular function was reported by several labs, in back-to-back-to-back



talks. This led to an examination of and better understanding of the "outs and ins" of tRNA processing. Tohru Yoshihisa had demonstrated that, oddly enough, tRNAs with introns are exported to the cytoplasm and that intron removal occurs at the mitochondrial surface in yeast. Even more amazingly, in 2005, Hussam Shaheen in Anita's lab and Takano in the Yoshihisa lab combined biochemistry and some very high quality immunocytological studies in yeast to demonstrate that fully processed tRNAs travel back into the nucleus; moreover, Mike Whitney in Anita's lab showed that the imported tRNAs are re-exported to cytoplasm to function in cytoplasmic the translation.

Anita's lab then knew the tRNAs were exported from the nucleus, then underwent retrograde transport back into the nucleus and back out again. Her lab and others then went on to identify the biological roles and need for this complex trafficking. The **Suzuki** lab showed that nuclear import and re-export are needed to correctly modify tRNA bases; **Hui-Yi Chu** in Anita's lab showed that retrograde tRNA traffic regulates translation of a subclass of mRNAs and **Emily Kramer** in Anita's lab demonstrated that tRNA retrograde nuclear import serves a novel role in tRNA quality control.

Despite the amount of discoveries that Anita's lab has made, she was careful to remind us we don't

yet know all of the tRNA biology. She was kind enough to share with the audience a fairly extensive "to-do" list so students looking for projects have some idea of where to start. She was optimistic that many of those unknowns would be solved soon as it is now possible in yeast to get deletion and temperature sensitive mutants, generated by the yeast consortium and by the Boone and Hieter labs. Using these collection stocks, **Jingyan Wu** in her lab headed an effort to identify proteins involved in tRNA biology and this method has led to the discovery of about 180 novel proteins that are somehow involved in tRNA biology. On-going work in her lab is identifying where in the pathway of tRNA biogenesis these mutants function.

Anita summarized her nearly 40 year journey by reflecting on the accomplishments and the extent to which many things have changed over the years. The power of the yeast genetic system made it possible, but the technological advances made it happen faster and better than possibly imaginable. She reiterated the critical nature of the support and comradery she received from mentors and peers. The invaluable friendships and collaborations and even the competition among those same people that created a sense of community because in the end, everyone wins!



She was particularly appreciative of the support of immediate family and friends and a host of collaborators and co-authors over the years, particularly **Nancy Martin**, a female colleague, peer and role model who was there early on and continues to be an important figure in her science life. And of course, the host of lab members past and present. -BP



RNA Society Awards Outstanding Service Award: David Lilley

This year's RNA Award for Outstanding Service goes to David Lilley. David has been the Chair of the Meetings Committee from 2006 until 2014. He was responsible for taking the Annual RNA Society meeting to



some of the more interesting international venues, including Berlin (2008) Kyoto (2011) and Davos (2013). The Kyoto meeting was the first time our RNA Society had a conference in conjunction with another Society. RNA 2011 was our Society's 16th annual meeting and was the RNA Society of Japan's 13th annual meeting. David was solely responsible for the opportunity for our two Societies to formally mingle over science. That successful meeting is one reason we are returning this year, and with David as a co-organizer.

David has always been active in the RNA Society. He has been a Conference organizer for the annual RNA meeting (in 2006 and again in 2016) and has been Chair of a more focused RNA meeting held annually, the Zing conference on

Nucleic Acids. He has a very active and productive research group at the University of Dundee. Additionally he is a visiting professor at Xiamen University, Fujian, China and has connections at a number of other Chinese Institutions, particularly in Shanghai, where he holds a joint research grant at Fudan University. Thus it is only a little surprising that he has managed to teach himself Chinese and is fluent in Mandarin.

When not in the lab, or hanging out in airports waiting for connecting flights, David is an avid runner and downhill skier, weather conditions permitting. Given his lab's productivity I anticipate he will continue to attend – and present at – future RNA Society meetings, thus allowing him to spend more time in airports.

RNA Society Awards Scaringe award

The Scaringe Award was established to recognize the achievement of young scientists engaged in RNA Research and to encourage them to pursue a career in the field of RNA. The award is open to all junior scientists (and awarded to both graduate students and post-docs) worldwide who have made **a significant research contribution to the broad area of RNA**, as evidenced by lead student authorship on published research, not restricted to any journal.

The awards this year went to (photos, left to right) Graduate Student : **Samuel Sternberg** Jennifer Doudna Lab UC-Berkeley DNA target specificity of the CRISPR RNA-guided Cas9 endonuclease

Graduate student : **Katherine Warner** Adrian Ferré-D'Amaré Lab (NHLBI-NIH) & Chris Abell Lab (Univ of Cambridge) *Small molecule interactions in a druggable RNA ribo*



Small molecule interactions in a druggable RNA riboswitch and in a fluorogenic RNA (Spinach)

Post-Doctoal Fellow : **Olga Anczukow-Camarda** Adrian Krainer Lab Cold Spring Harbor Labs *Alternative-splicing misregulation and cancer therapeutic strategies*



RNA Society Awards Meeting Poster Awards

Each year, awards are made to acknowledge exemplary research presented at the poster session from submitted abstracts. This year's winners were acknowledged on stage at the awards session.



shown : from left to right, Wenwen Fang, Sebastian Markmiller, Amruta Bhate, Justin Wolter, Ji Chen, Shanker Panchapakesan, Akanksha Goyal, Andrew Santiago-Frangos, Meredith Corley, Chanin Tolson.

Lexogen Poster award : *outstanding RNA research using next generation sequencing* **Shermin Pei** Boston College : *Combining sequence and structure approaches to assess the landscape of SELEX derived aptamers to ribosomal protein S15*

Lexogen Poster award : *outstanding RNA research using next generation sequencing Wenwen Fang* Whitehead Institute : *De novo design of primary microRNAs*

Lexogen Poster award : *outstanding RNA research using next generation sequencing* **Anya Grozhik** Cornell University : *Single-nucleotide resolution mapping of m6A throughout the transcriptome*

New England Biolabs Poster award : *general excellence in RNA research* **Paul Yourik** NIH : *Probing the mechanism of ATP utilization in mRNA recruitment to the eukaryotic ribosome*

New England Biolabs Poster award : *general excellence in RNA research* **Ji Chen** Purdue University : *Engineered riboswitch that aminoacylates tRNA with unnatural amino acid*



New England Biolabs Poster award : general excellence in RNA research

Shanker Panchapakesan Simon Fraser University : *RNA Mango fluorescent tag for high affinity native RNA-Protein complex purification*

RNA Society Poster award : *innovation in RNA research*

Sebastian Markmiller UCSD : Large-scale proteomics and sequencing approaches systematically identify stress granule protein and RNA components in human neuronal cells

RNA Society Poster award : *outstanding interdisciplinary RNA research*

Amruta Bhate Univ. Illinois, Urbana Champaign : *ESRP2 Regulates A Conserved And Cell-Type-Specific Splicing Program to Support Postnatal Liver Maturation*

RNA Society Poster award: *outstanding RNA structural biology research* **Andrew Santiago-Frangos** Johns Hopkins Univ. : *Hfq C-terminus affects RNA binding and annealing*

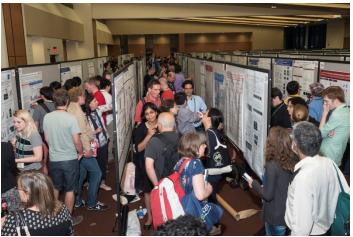
RNA Society Poster award: *outstanding RNA molecular biology research Akanksha Goyal* Max Planck Institute : *The reaction landscape of transition from the initiation to elongation phases of translation*

RNA Society Poster award: *outstanding RNA research in genetics and development* Justin M. Wolter Arizona State Univ. : The Static Dynamics of Gene Regulation by the miR-10 Family of microRNAs

RNA Society Poster award: *innovation in computational RNA research Meredith Corley* Univ. North Carolina, Chapel Hill : Detecting riboSNitches with RNA folding algorithms: a genome-wide benchmark

RNA Society Poster award: *innovation in computational RNA research Chanin Tolson* Univ. North Carolina, Chapel Hill: *Autonomous Classification of RNA Structure Change*







Mentor-Mentee lunch : RNA 2015 Organized by : Elizabeth J. Tran and Nancy Greenbaum

The Mentor-Mentee Luncheon has been a landmark event at the annual RNA Society meeting



since its establishment over 10 years ago. This year's event was no exception with almost 470 meeting attendants participating. Interestingly, this is the same percent participation (55%) that we saw at RNA 2014 in Quebec City, indicating that RNA society members appreciate

this event and are glad to attend it year after year. The luncheon was held on Thursday, immediately following an exciting plenary session on splicing. Students, postdocs, faculty, industry professionals and research staff were seated at individual tables according to selected discussion topic choices. As in prior years, both the mentors and mentees had the option of picking first, second, and third choice topics and were then seated based on topic preference and geographical area of interest. The topics were the same this year as in past years; however, we changed the wording of the topics slightly to help frame discussions. For example, the prior "postdoc positions" topic was changed to "maximizing your postdoctoral training experience" and "biotech/industry" was "networking and negotiating strategies for biotech/industry positions". This was based on helpful discussions with Mike Meers, past Junior RNA Society Representative (Thanks Mike!). Two other changes included printing the assigned topic category on the mentoring luncheon ticket received at registration as well as emailing luncheon mentors in advance to remind them of the luncheon and explain the

format. **Nancy Greenbaum** spearheaded the latter. (Thanks Nancy!)

I'm happy to say that we were able to grant first choice selections to the vast majority of mentee with 300 of 351 seated at their first choice. Mentees seated at second choice options had selected biotech/industry, a number one choice that is consistently oversubscribed from year to year due to a lack of mentor participants at the luncheon (25 or 40% of mentees select biotech as 1^{st} or $1^{st} \& 2^{nd}$ choice). This suggests that RNA meeting participants are actively seeking opportunities for one-on-one interactions with biotech and industry professionals. The RNA Society may need to consider options outside of the annual meeting luncheon to meet this need. Another interesting trend that was observed was a 50% decrease in mentees interested in faculty positions at research institutions as compared to RNA 2014 with a concurrent increase in fellowship writing and family work-life balance. This may reflect growing concern about the current funding climate within the scientific community or increased recognition that mentoring across a wide variety of skill sets is critical for future advancement. Regardless, the consistent participation from mentees underscores the importance of this event to the RNA society community. Thanks to all of the mentors for giving their time to support our junior scientists.

On a final note, I will be stepping down as coordinator for the mentoring luncheon to focus on my newly elected position on the RNA Society Board. I hope to see everyone at RNA 2016 in Kyoto. *Sayonara!* Elizabeth J. Tran



From the Desk of the CEO Jim McSwiggen

This marks my 10th opportunity to write about the state of the RNA Society in one of our biannual newsletters. I am pleased to report, again, that the state of the society continues to be good, as I outline below. We continue to



look for ways to grow the membership, to support our members both financially and otherwise, and to do what we can to promote RNA research and education. New initiatives sometimes seem slow to develop, however, due to the fact that all of our officers and staff are volunteers with competing day jobs. Nevertheless, new initiatives are being developed and tested, like the hosting of small conferences and the experimental collaboration with the Oligonucleotide Therapeutic Society that are mentioned below. If you have ideas for other initiatives we would love to hear from you, especially if you also volunteer your time to make them come to fruition.

Here, then, is the state of the society.

- Society membership was at **1409** members in June. That's 12% down from 2014, but 5% higher than the same time in 2013. This big fluctuation probably reflects the different locations of our annual meeting and some changes that we continue to make in member recruitment.
- The journal, *RNA*, continues to enjoy both scientific regard and continued profitability. Net profit share to the society was at an all-time high of **\$266,800** in 2014, and 2015 is expected to be similar. That revenue stream makes possible our support for small conferences and RNA clubs, and gives us the freedom to site our annual meeting in locations that might otherwise seem too financially risky. We also recognize that reducing journal charges to authors would also be a benefit to the RNA community. We are working toward that goal and hope to have a new cost structure before the end of the year.
- The annual meeting in Madison–RNA XX, or the 20th Annual Meeting of the RNA Society–was a big success, with a total of **870** attendees. That tally is a bit lower than Quebec (911) but still a very good turnout. Those who were unable to attend missed great science, great food, and a nicely renovated conference venue. The accounts are still being finalized, but we are hoping that the event will return a small profit.
- The RNA 2015 conference survey is now complete and can be reviewed <u>here</u>. As in the past, attendees were largely very pleased with all aspects of the conference. A few small areas of concern were raised that need to be looked at more closely and addressed in the future.
- I wrote last year that the Society was hosting two small conferences as a test of whether such activities will be a benefit to our members and the RNA community. The **RNAse H** meeting concluded successfully last September, with 15% of the attendees claiming RNA Society membership, and with no financial loss to the society. The **Ribosome Synthesis** meeting is still coming up (19-22 August 2015, Hotel Metropole, Brussels, Belgium), and is also expected to be successful both scientifically and financially.
- As I mentioned in the January newsletter, we are trying an experimental collaboration with the **Oligonucleotide Therapeutic Society** in an effort to boost attendance at both societies' annual meetings, and particularly to increase the participation by industry scientists at our annual meetings. The collaboration involves hosting a scientific session at each other's annual meeting. The first such exchange took place at our June meeting, and I believe it worked out well. Questions Q21-Q23 of the <u>RNA 2015 survey</u> suggest that survey respondents largely agreed that the effort was a success. Now it's our turn to host a session at the OTS annual meeting (in Leiden, The Netherlands on October 11-14 of this year). **Tracy Johnson** (UCLA) will be the chair of our session at the meeting. If this works out–and I hope it does–then we will discuss continuing the collaboration for next year as well.



Well, that's the state of the society from my vantage point. I want to thank you for being such a great community to work for and with. You continue to be very supportive of each other and the Society–through your membership, your volunteerism, and your insistence on the highest quality research.

As always, if you have questions or comments about what I have written here–or regarding any other Society business–I will be happy to hear them. You can contact me at <u>ceo@rnasociety.org</u>.

Report from the Meetings Committee

RNA 2015 was the first gathering of a brand new and official roster of Meetings Committee voting members with me as Chair of the committee. A special thank you the members of this committee: Jean Beggs, Markus Bohnsack, Sam Butcher, Michelle Hastings, Melissa Jurica, Eric Phizicky, Renée Schroeder, Mikiko Siomi and Erik Sontheimer. Several elected and appointed RNA Officers (including Jim McSwiggen, Sarah Woodson, Adrian Krainer and Brenda Peculis) and other interested parties were present for a very productive Meetings Committee assembly in Madison.

We were given updates on the organization of the **Kyoto** (**RNA 2016**) and **Prague** (**RNA 2017**) meetings. See below for much more information about RNA 2016 in Kyoto. You will receive an Email when the registration web site is open. In addition we had a discussion about a variety of potential US venues for the RNA 2018 meeting. More on that as additional information becomes available and some decisions have been made. We have begun to consider venues for RNA 2019 and many sites in Europe were proposed. All suggestions will be considered as we begin to examine more closely and begin building a comparative chart of costs. The survey that several of you participated in indicated overall cost (registration as well as travel) was a serious consideration in attending a meeting. Thus, the Meetings Committee is working hard to balance exotic venue and cost for attending. While there was no decision, and little agreement on a specific continent for RNA 2019, the Committee members recognized potential benefits to reaching out to our Asian and Australian ribo-colleagues. Please keep forwarding your comments and suggestions of venues for consideration. <u>Benoit.Chabot@USherbrooke.ca</u>

Benoit Chabot Chair of the Meeting Committee Université de Sherbrooke

> RNA 2016: The 21st Annual Meeting of the RNA Society June 28 to July 2, 2016 Kyoto International Conference Center Kyoto, Japan

RNA 2017: The 22nd Annual Meeting of the RNA Society June 13 to June 17, 2017 Prague Congress Center Prague, Czech Republic



Welcome to RNA 2016 in Kyoto !

For the second time the RNA society will be holding a joint conference with the **RNA Society of Japan**. We invite everyone who is interested in RNA science to come to the wonderful Japanese city of Kyoto, from **28 June - 2 July, 2016**.

Kyoto is the ancient imperial capital of Japan, known as the City of Ten Thousand Shrines. It is home to thousands of classical temples and shrines, gardens and imperial palaces, and traditional wooden houses. It's also famous for formal traditions including as kaiseki dining. It is in the Kansai region within the Kyoto-Osaka-Kobe metropolitan area, with excellent air and train connections.

The 21st meeting of the RNA Society will be held in the excellent Kyoto International Conference Center, where the UN Framework Convention on Climate Change was signed in 1997. Some will remember this as the venue for the 2011 RNA Society meeting. The conference center is on the north edge of Kyoto, but connected by the subway, with a station adjacent to the center. Many of the hotels in downtown will be accessible by this line and/or public buses run by the city.

We are planning an exciting scientific program. We shall have four key-note speakers : **Brent Graveley;** Rachel Green; Kiyoshi Nagai; Shigeyuki Yokoyama

The remaining program will be selected from the submitted abstracts as usual. In the spirit of RNA Society conferences we strongly encourage graduate students and postdoctoral scientists to submit abstracts for oral presentation. At present the planned sessions and chairs are :

RNA splicing : Jon Staley	Ribonucleoproteins : Ke Qiong Ye
Translation : Toshifumi Inada	Ribozymes, riboswitches & RNA structure : Ai Long Ke
Post-transcriptional regulation : Beth Tran	RNA modification and editing : Kazuko Nishikura
RNA transport and localization : Ulrike Kutay	RNA chemistry & therapeutics : Anastasia Khvorova
Non-coding RNAs : Tetsuro Hirose	RNA in disease : Adrian Krainer

The sessions may change a little based upon abstracts received. In addition we shall have a number of workshops, and welcome suggestions for rapidly developing areas that would be suitable for this format. Last but certainly not least, there will be exciting poster sessions, and many opportunities to win prizes for the best posters in different categories.

Further details of the program, accommodation and transport links as well as travel fellowships will be given on the conference web site when that site is opened – watch your Email!.

We look forward to welcoming all our RNA colleagues to Kyoto! 京都で会いましょう!

Mikiko Siomi (University of Tokyo) Utz Fischer (University of Würzburg) Wendy Gilbert (MIT) David Lilley (University of Dundee) Erik Sontheimer (University of Massachusetts) Tsutomu Suzuki (University of Tokyo)



Thank You, Volunteers

The RNA Society both survives and thrives because of the efforts of many volunteers. We hire out some of our activities (to FASEB, Cold Spring Harbor Press, and others), but the key creative and decision-making activities are done entirely by Society volunteers. In this article, the RNA Society Board would like to acknowledge those efforts for the past year. Please accept our sincere apologies if we've left anyone out.

Committees and Committee Chairs

A variety of committees help the Society carry out its essential functions.

- Andrew Feig is our <u>Chief Financial Officer</u>. He acts as the interface with our business office at FASEB, requests and approves payments for Society expenses, oversees our new investment committee, and generally ensures that we stay on track financially. Andrew has been doing this for a year and a half, and our financial organization has much improved under his tenure.
- Benoit Chabot has been the <u>Meetings Committee Chair</u> beginning this year. He leads the effort to find the next interesting place to hold our annual meeting, while ensuring that the venue will be both workable and affordable. He is busy now in helping to find great venues for 2018 & 2017. He has been helped this year by a newly reconstituted meetings committee that includes: Jean Beggs, Markus Bohnsack, Sam Butcher, Michelle Hastings, Melissa Jurica, Eric Phizicky, Renée Schroeder, Mikiko Siomi, Erik Sontheimer, and Brenda Peculis (Secretary, ex officio).
- **Kristian Baker** is the Chair of our <u>Membership Committee</u>. She is working to find more and better ways to serve our membership and to encourage more people to join.
- **Maire Osborn** is the Chair of our <u>Business Development Committee</u>. She is tasked with building better connections between the RNA Society and the RNA business community, to seek financial support from them for our activities, and to encourage their participation in the annual conference.
- The <u>Nominating Committee</u> is appointed by the president each year to search for the best candidates to run for our elected offices of President, Secretary, and Board Member. Most importantly, after identifying such candidates they have to convince them to agree to run for office. This year the job was handled by: **Katrin Karbstein, Mikolaj Olejniczak, Yukihide Tomari, and Nils Walter**. An excellent field of candidates was identified and persuaded to run for office.

Conference Organizers

Our annual meetings just keep getting better, in large part due to the tremendous efforts of the volunteers who agree to organize the events. This year's meeting in Madison was a great success. The RNA 2016 organizers are now hard at work preparing for next year's conference in Kyoto, while the 2017 organizers are just getting started.

RNA 2015 Organizers (Madison):	David Brow, Matthias Hentze, Amy Pasquinelli, and Anna Pyle
-	Mikiko Siomi, Utz Fischer, Wendy Gilbert, David Lilley, Erik Sontheimer, Tsutomu Suzuki
0	Andrea Barta, Rachel Green, Christopher Lima, Ron Micura, Petr Svoboda, and Yukihide Tomari

Conference Volunteers

Other volunteers also help with specific projects at the annual meeting.

• Each year the conference organizers rely heavily on the <u>session and workshop chairs</u> to help in selecting abstracts for oral presentations, and then for introducing the session or workshop and ensuring that talks stay on schedule. This year, as always, the session and workshop chairs did an excellent job in these



tasks. Thanks to: **Rob Batey, Phil Bevilacqua, Howard Chang, Chonghui Cheng, Gloria Culver,** Allison Didychuck, Utz Fischer, Niels Gehring, Jane Jackman, Samie Jaffrey, Rich Maraia, Brett Monia, Melissa Moore, Charles Query, Stephen Rader, Tamar Schlick, Erik Sontheimer, Jernej Ule, Ambro Van Hoof, Elmar Wahle, Marv Wickens, Hans-Joachim Wieden, and Darrin York.

- Also each year, the Society awards prizes for the best posters in various categories. Judges constitute an appointed <u>Poster Prize Committee</u>. This year the task of choosing the winning posters was accomplished by a dedicated group of 17 volunteers, and lead by conference organizer **Amy Pasquinelli**. This year's judges were: **Kristian Baker, Julie Claycomb, Jeff Coller, Aaron Goldstrohm, Aaron Hoskins, Maki Inada, Kristen Lynch, Javier Martinez, Joel McManus, Gracjan Michlewski, Stavroula Mili, Lukas Paul, Martha Peterson, Jeffrey Pleiss, Olivia Rissland, Eric Wagner, Eugene Yeo.**
- The Mentor-Mentee Lunch is one of the highlights of the annual conference for many attendees. It's a big job to organize the tables so that people sit in groups according to their topics of interest, then to make sure people find their tables and that the plan actually works out. Thanks to **Beth Tran & Nancy Greenbaum** for making the lunch a big success.
- Thanks, also, to on-site volunteers for helping with audio/visual, t-shirt distribution and directing people to venues. They are: Erik Anderson, Matt Ashton, Arthur Clark, Sean Hinds, George Luo, Hugo Medina, Mattie O'Sullivan, Harriet Saunders, See-Yeun Ting, and Brexton Turner.

Junior Scientist Reps & Advisors

The Junior Scientist Reps are graduate students and post-docs who are working diligently to gain a greater voice for junior scientists in the Society. They do all the planning and heavy lifting for junior scientist events at each of the annual meetings, among other things. This year's events were a great success due to their hard work.

Grad Reps	Allison Didychuk and Michael Meers
Post-doc Reps	Sebastian Markmiller and Phil McCown
Faculty Advisors	Katrin Karbstein and Sam Butcher

Newsletter Editor

Brenda Peculis has been the <u>Newsletter Editor</u> since 2005. Twice a year she sends out reminders for articles to be added to the newsletter, then gently pesters the contributors until they complete their tasks. Finally, she formats the whole thing, adds pictures and quotes, and then sends it out for the rest of us to read.

RNA Journal Editors, Board and Reviewers

What can we say? You all know what editors do, and you also know that it can be a lot of work. Both the contributors' decisions to submit top-quality manuscripts to *RNA*, and the editors' efforts to ensure that accepted manuscripts maintain the highest quality, has resulted in a journal that is highly regarded in the field. It has also made *RNA* a good, consistent source of revenue for the Society.

Editor-in-Chief: Editors:	Timothy W. Nilsen Javier F. Caceres, Kathleen Collins, Elena Conti, Adrian R. Ferré-D'Amaré, Brenton R. Graveley, Rachel Green, Elisa Izaurralde, Daniel Kolakofsky, Rob Singer, Erik Sontheimer,
Reviews Editor:	Peter F. Stadler, Gisela Storz, and Eric Westhof Thomas R. Cech
Editorial Board:	John N. Abelson, Sidney Altman, Manuel Ares, David P. Bartel,
	Brenda L. Bass, Philip C. Bevilacqua, Douglas L. Black, Thomas
	Blumenthal, Ronald R. Breaker, Chris Burge, James E.
	Dahlberg, David R. Engelke, Martha J. Fedor, Witold Filipowicz,
	Mariano A. Garcia-Blanco, Christine Guthrie, Matthias W.
	Hentze, Daniel Herschlag, Allan Jacobson, Walter Keller, Adrian
	R. Krainer, Alan M. Lambowitz, David M.J. Lilley, Reinhard



Lührmann, Thomas Maniatis, James Manley, Lynne E. Maquat, Iain W. Mattaj, William H. McClain, Andrew Newman, Harry F. Noller, Norman R. Pace, Richard A. Padgett, Roy Parker, Marina V. Rodnina, Michael Rosbash, Phillip A. Sharp, Joan A. Steitz, Scott Strobel, David Tollervey, Thomas Tuschl, Olke C. Uhlenbeck, Juan Valcárcel, Alan M. Weiner, Marvin Wickens, James R. Williamson, Sandra L. Wolin, Sarah A. Woodson, and Robert Zimmermann

We also thank the roughly 600 scientists who agree to review manuscripts for RNA each year. Their work is essential to maintaining the high quality of published papers in *RNA*.

To all of these volunteers—and to any that we might have missed—we offer our sincere thanks for all that you've done and continue to do for the RNA Society.

Sincerely,

The RNA Society Board of Directors.

Sarah Woodson, President; James McSwiggen, CEO; Adrian Krainer, Past-President; Andrew Feig, CFO; Brenda Peculis, Secretary; Board Members : Fred Allain, Adrian Ferre-D'Amare, Fatima Gebauer, Barb Golden, Kristen Lynch, and Phil Zamore

Educational Videos ?

Do you know of any particularly good, uniquely clarifying or just fun educational videos about RNA? Perhaps something you have used – or seen someone else use – in class?

It has been suggested that we collect the URLs of RNA-related videos that are already out there and compile them on the RNA Society web site. Who better to nominate good videos than our members who are, after all, our most knowledgeable resource!

If you have a good video please send the URL as well as a brief description of WHY you think it is particularly good. Perhaps also include an indication of the targeted audience. Is the video great for the general public? Would it be better for grade school, high school, or perhaps an undergraduate college level? Do you know of great educational videos that Graduate Students should be aware of ?

Please share by sending the URL, a sentence of two of topic covered and the targeted audience to : secretary@RNASociety.com

When we get a critical mass we will post your information on the RNA Society's web site.



Gairdner Symposium RNA and the New Genetics

Friday, October 30, 2015 | 8:45 a.m. - 3:30 p.m. | University of Toronto, Macleod Auditorium

	Focused on the research of Dr. Lynne Maquat, 2015 Canada Gairdner International Award winner, the Gairdner Foundation is hosting a one- day symposium devoted to recent groundbreaking studies and seminal discoveries in the field of non-coding RNA (ncRNA). This class of RNA performs many biological functions in the cell including protein synthesis and DNA replication. It has recently been realized that these mechanisms may be helpful in the treatment of many diseases such as aging, cancer, autism, Alzheimer's and other neurodegenerative pathologies.
	Dr. Lynne Maquat University of Rochester School of Medicine and Dentistry
Noncoding RNA	 Dr. Phillip Sharp Koch Institute for Integrative Cancer Research, MIT Dr. Howard Chang Stanford University School of Medicine
RNA-mediated Epigenetics	-
Pre-mRNA Splicing	Dr. Benjamin Blencowe University of Toronto
microRNAs	Dr. Joshua Mendell UT Southwestern Medical Center
CRISPR/Cas	Dr. Emmanuelle Charpentier Hannover Medical School Helmholtz Centre for Infection Research
	Dr. Feng Zhang McGovern Institute for Brain Research
Ethics of genome editing	Dr. Erik Sontheimer University of Massachusetts Medical School
	gairdner

The Gairdner Symposia | Gairdner National Program | Gairdner Student Outreach Program | Gairdner Awardee Lecture Series www.gairdner.org | @GairdnerAwards

LES PRIX CANADA GAIRDNER AWARDS

Sponsors for RNA 2015















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RNA Society supported Past meetings :

RNA Control of Gene Expression in Amoebae - 2015

January 29th - 31st, 2015 Wesendorf, Germany

The annual meeting of researchers interested in the manifold ways by which RNA molecules control gene expression in amoebae took place in Wesendorf (Lower Saxony, Germany). It was supported by the RNA Society, and was organized in partnership with Jacobs University Bremen (Germany). Twenty-one researchers gave reports on the biochemistry, genetics and genomics of amoebae, with an emphasis on the model organism Dictyostelium discoideum. Thanks to the



support of the **RNA Society**, a total of 13 students and postdoctoral fellows - who all gave oral presentations at this meeting - were supported to attend this meeting by reducing their conference fees.

The next meeting on RNA control of gene expression in Amoebae is scheduled to take place in January 2016. For details, please contact Christian Hammann (c.hammann@jacobs-university.de)

Gordon Research Conference on RNA Nanotechnology February 1st – 6th, 2015 Ventura, California, USA

The conference brought together ~130 scientists across 15 countries from academia, industry, and government. This conference particularly encouraged a cross-disciplinary approach to RNA nanotechnology research to specifically foster

collaborations between scientists and engineers working in the diverse fields of chemistry, biochemistry, structural biology, microbiology, cancer biology, cell biology, biophysics, pharmacy, materials, and nanotechnology. The meeting covered a range of topics, including: structure and folding of RNA nanoparticles; physical and chemical approaches in RNA nanotechnology; computation, prediction, and modeling of RNA nanoparticle structures focusing on inter-molecular interactions; application of



RNA nanoparticles in thera-peutics for the treatment of diseases; and finally two sessions covering the exciting new area of extracellular RNA for biomarker and therapeutic development. Further information can be found at (www.grc.org/programs.aspx?id=16896).

We thank the **RNA Society** for providing sponsorship to support the attendance of three junior researchers: **Tae Jin Lee** (Postdoctoral fellow, Dr. Carlo Croce's lab, The Ohio State University), **Mark Boerneke** (Graduate Student, Dr. Thomas Hermann's Lab, UCSD), and **Hui Li** (Graduate Student, Dr. Peixuan Guo's Lab, University of Kentucky)

Gordon Research Conference on RNA Editing and Modification March 8th -13th, 2015 Lucca, Italy

The 10th GRC on RNA Editing and Modification took place for the first time in Europe (Lucca, Italy), where a record number of more than 150 participants came together to discuss and promote research at the frontiers of editing and modification of nucleic acids. The theme of the 2015 meeting, organized by Michael Jantsch (University of Vienna) and Jane Jackman (The Ohio State University), was "Diversifying the Transcriptome: Consequences for Development and



Disease". The meeting showcased 9 oral presentation sessions, including talks from many prominent RNA researchers highlighting the important ways that information encoded by genomes is extensively altered at the level of gene expression. Oral presentations selected from submitted abstracts provided the conference attendees with exciting talks

from several junior members of the editing and modification field, and demonstrated many new directions currently being explored in terms of the biogenesis, detection and physiological consequences of normal and pathological changes to RNA in biology.

In the beautiful location of the Il Ciocco hotel in Italy, attendees also enjoyed four late-afternoon poster sessions with a diverse selection of nearly 100 poster presentations. We are very grateful for the support of the **RNA Society**, who provided poster awards to graduate student and postdoctoral fellows for their outstanding presentations. Graduate student award winners were *Krishna Patel (The Ohio State University)* and *Violeta*



Rayon-Estrada (Rockefeller University). Post-doctoral fellow award winners were Aiofe McMahon (Brandeis University) and Shraddha Sharma (Roswell Park Cancer Institute).

Post-Transcriptional Gene Regulation: Mechanisms at the Heart of Networks March $23^{rd} - 27^{th}$, 2015

March $23^{n} - 27^{n}$, 2 Orsay, France

The first course on "*Post-Transcriptional Gene Regulation: Mechanisms at the Heart of Networks*" took place March 23-27 at Institut Curie in Orsay, France. This annual course is designed for young researchers, especially PhD students and postdocs, that are undertaking research on RNA. The first aim was to provide an overview of post-transcriptional gene regulations, including pre-mRNA splicing, polyadenylation, stability, and translation. Three aspects were covered by the course: molecular mechanisms, genome-wide analyses, and involvement in cancer. The second aim was to provide young researchers an opportunity to interact with experts in the RNA field and to present their research at a poster session.



The course gathered 39 participants from labs in 8 European countries, Canada and India. The 20 speakers came from labs in 7 European countries and the USA, and covered various aspects of RNA biology, including RNA structure and RNA-protein interactions (J. Ule), RBP structure and identification (F. Allain, M. Hentze), RNA imaging (E. Bertrand, J. Chao), transcriptome (D. Auboeuf, R. Guigo, O. Larsson), splicing regulation and coupling to chromatin (R. Luco, J.

Valcarcel), polyadenylation (M. Dutertre, S. Vagner), NMD (O. Le Hir), translation and ribosome profiling (F. Gebauer, O. Larsson, O. Namy), non-coding RNAs (R. Agami, R. Guigo, R. Luco), and multi-step integration (S. Vagner). In addition, a focus session entitled *"RNA towards the clinic"* involved four medical doctors involved in clinical research (A. Kulozik, Y. Pommier, C. Robert, M.H. Stern).

In addition to lectures and poster sessions, participants attended a career workshop and visited Institut Curie museum in Paris. The full course programme can be found at <u>http://enseignement.curie.fr/en/content/1st-course-post-transcriptional-gene-regulation-mechanisms-heart-networks-2015</u>.

We are very grateful to the **RNA Society** for their support of trainee participation in this course. Two travel fellowships (400 euros each) were awarded based on RNA Society sponsorship to **Alina Chakraborty** (University of Calcutta, India) and **Katharina Schubhart** (Institute of Molecular Toxicology and Pharmacology, Helmholtz Zentrum Munich, Germany).



Please join us for the 2^{nd} course on "Post-Transcriptional Gene Regulation: Mechanisms at the Heart of Networks" to be held March $7^{th} - 11^{th}$, 2016.



10th Annual Microsymposium on Small RNAs

May 4th – 6th, 2015 Vienna, Austria

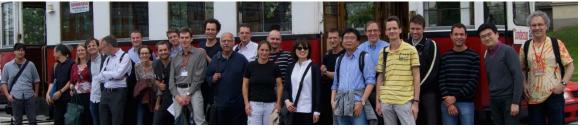
The "10th Microsymposium on small RNAs" took place May $4^{th} - 6^{th}$, 2015 at the Institute of Molecular Biotechnology (IMBA) of the Austrian Academy of Sciences, bringing together leading scientists in the world working on the role of small non-coding RNAs in the regulation of gene expression. The conference was organized by IMBA, together with its partner-organization the Research Institute of Molecular Pathology (IMP).

Ten years ago the "Microsymposium on small RNAs" was founded at IMBA with the aim to bring together young and aspiring scientists working on different aspects of small RNA Biology. Since then, the Microsymposium has become one of the most popular meetings on this topic in Europe and beyond, attracting the leaders in the field from all over the world.

At the 10th anniversary of the Microsymposium leading scientists in the field were invited to discuss the recent advancements in RNAi. Over 20 speakers from renowned research institutes, including the University of Cambridge, MIT, the Max Planck Institute for Developmental Biology in Tübingen, and the California Institute of Technology presented their latest results. In total ~200 scientists and students from 23 countries participated at the Microsymposium. Like every year, the conference was free of charge, facilitating the attendence for young researchers and students. In addition to the talks of established researchers, numerous students were able to present their research in a PhD workshop and discuss their results with the audience. The generous sponsoring of the **RNA Society** co-funded this PhD student workshop including the awards for the best two presentations, which went to **Katarzyna Kowalik** (Bühler Lab, FMI) and **Domink Handler** (Brennecke Lab, IMBA).

The

Microsymposium on small RNAs is an important contribution to foster and expand the interaction between



researchers and to enable an exchange between scientists and young students. The 10th anniversary of the event clearly reflected the impact of the field on diverse biological areas and highlighted its future perspectives.

Gordon Research Conference on Nucleic Acids

May 31st - June 5th, 2015 Biddeford, Maine, USA

The 2015 GRC Nucleic Acid Conference took place at the beginning of June in Biddeford, on the coast of Maine. The meeting showcased talks from experts in different fields of nucleic acid research as well as recent highlights selected from the abstracts and presented by junior researchers. As of tradition, this meeting covered both RNA and DNA biology, with mechanistic, structural and functional perspectives. As such, it was a great opportunity to get up to speed with recent advances and findings in fields that impact on one's own



but are rarely represented at specialized meetings. The atmosphere was relaxed, with an active audience firing questions from many different angles. The four poster sessions were also very lively -a result of the great science presented and the additional help of free drinks...

Generous support from the RNA Society allowed travel scholarship to be awarded to three student/postdocs selected from their poster presentations (shown left to right in photo): **Bernadette Nera** (UC Davis) reported on the mechanisms with which TRF2 causes telomere shortening in mammalian cells; **Joseph Dahl** (Univ. California, Santa Cruz) reported the



kinetic mechanisms with which ribonucleotides are stably incorporated in DNA polymerase complexes; and, **Mohamed Fareh** (Delft, NL) showed the development of a single-molecule fluorescence assay to observe in real time how Dicer interacts with pre-miRNAs.

RNA Stability 2015 – RNA Stability with an Altitude June $1^{st} - 4^{th}$, 2015 Estes Park, Colorado, USA

The 'RNA Stability 2015 – RNA Stability with an Altitude' meeting took place June 1-4, 2015 at the historic (and haunted...) Stanley Hotel at the doorstep of Rocky Mountain National Park in Estes Park, Colorado. This was the sixth meeting in a series that began in 2003 in Florence, Italy. Other meeting venues included Arolla, Asheville, Montreal and Strasbourg. The research presented at this meeting covered a wide range of basic and applied topics related to RNA stability. There was a total of 51 talks and 36 posters, and lively discussion from the more than 100 participants (including

25 invited speakers) provided for a terrific experience. For more information on the meeting program, please visit http://rnastability2015.com/

Congratulations to Dithi Banerjee (SUNY – Buffalo) and Sujatha Jagannathan (Fred Hutchinson Cancer Research Center) for winning **RNA Society** awards for top poster presentations and to Eva Kowalinski (Max



Planck Institute of Biochemistry) for winning the NAR award for top oral presentation.

RiboWest 2015

June 8th & 9th, 2015 Edmonton, Alberta, Canada

The 11th Annual RiboWest Conference was held in Edmonton, AB on June 8th and 9th, 2015 with participants spending 120 two days meeting about all things RNA. This included three keynote speakers - Drs. Ron Breaker, Roy Parker and Daniel Lafontaine - as well as graduate students, undergraduates, postdocs, faculty, and industry partners. The meeting showcased current research in the RNA field with ~25 oral presentations and >50 posters, plus it the future took a look towards for trainees through a panel discussion with



representatives from academia, industry, government, and publishing. Overall, the conference was a great success and concluded with award presentations, which were kindly provided through the generosity of the **RNA Society** and other conference sponsors.

RNA Society Travel Fellowships: **Corbin Black** (M.Sc. student, University of Northern British Columbia, Dr. Stephen Rader's lab), **Thomas Dixon-McDougall** (University of British Columbia, Dr. Carolyn Brown's lab), **Sunny Jeng** (Ph.D. student, Simon Fraser University, Dr. Peter Unrau's lab), **Laura Keffer-Wilkes** (Ph.D. student, University of Lethbridge, Dr. Ute Kothe's lab).

Presentation Awards: **Devon Germain** (Ph.D. student, University of Alberta, Dr. Roseline Godbout's lab), **Scott Findlay** (Ph.D. student, University of Alberta, Dr. Lynne-Marie Postovit's lab), **Azra Lari** (Ph.D. student, University of Alberta,



Dr. Ben Montpetit's lab), Chris Neufeldt (Postdoctoral fellow, University of Alberta, Drs. Lorne Tyrrell and Richard Wozniak's labs).

Poster Awards: **Jessica Baedke** (Undergraduate student, University of Lethbridge, Dr. Ute Kothe's lab), Dylan Girodat (Ph.D. student, University of Lethbridge, Dr. Hans-Joachim Wieden's lab), Andrew Hudson (Postdoctoral fellow, University of Lethbridge, Dr. Hans-Joachim Wieden's lab), Luc Roberts (Ph.D. student, University of Lethbridge, Dr. Hans-Joachim Wieden's lab), Sarah Shultz (Undergraduate student, University of Lethbridge, Dr. Ute Kothe's lab).

2015 Integrative RNA Biology – Special Interest Group

July 10th 2015 Dublin, Ireland

The 12th Special Interest Group meeting on Integrative RNA Biology (IRB-SIG) was held July 10, 2015 in Dublin, Ireland. The annual meeting is designed to bring together world experts in RNA processing, non-coding RNAs, and computation to discuss recent advances in the integrated view of RNA biology and its relation to human disease. It aims to bridge the gap between the different research fields to foster new research ideas for deciphering the regulation of RNA processing. This year we had an exciting line-up of researchers from academia and industry that cover advances and challenges in RNA quantification



methods (Cathal Seoighe and Magnus Rattray), targeting RNAs for therapeutic application (Nicole Meisner-Kober), the role of RNA binding proteins in cancer and RNA processing (David Elliot), and lncRNAs and evolution (Mar Alba).

Léon-Charles Tranchevent from the Cancer Research Centre of Lyon in France (Auboeuf Lab), Anna Eisenberg from



Tel-Aviv University in Israel (Ast Lab), and Juan Luis Trincado from the Universitat Pompeu Fabra in Spain (Eyras Lab) received an **RNA Society**-sponsored travel fellowship to cover their registration costs.

The **RNA Society** sponsored poster prize of \$100 was awarded to **Anna Eisenberg** from Tel-Aviv University (**Ast** Lab) who presented a poster on her work "The combinatorial effects of RNA Polymerase II elongation rate, nucleosome occupancy and chromatin organization on alternative splicing". The organizers thank the **RNA Society** for their generous support of the IRB-SIG 2015.



Upcoming meetings

16th Annual RiboClub Meeting

September 21st – 23rd, 2015 Orford, Quebec, Canada

RNA scientists in Sherbrooke have organized the 16^{th} *RiboClub Meeting* to be held in Orford (in the vicinity of Sherbrooke, Quebec, Canada) on September $21^{st} - 23^{rd}$. This year the meeting is organized in partnership with the *Institut de Génétique Moléculaire* de Montpellier, France. For more information: http://www.riboclub.org/OpeningSession/images/2015/riboclub2015-web.pdf

The program includes keynote lectures by Adrian Krainer and Eric Westhof, poster sessions and 25 invited speakers on plenary sessions RNA processing and decay, RNA localization and transport, splicing regulation, translation, non-coding



RNAs, transcriptome detection and RNA-driven pathologies. The flavor of the year is "*New frontiers in RNA biology and human diseases*". Additional talks will be selected from submitted abstracts. The program also includes an after-dinner presentation by Paul McKellips from *One Health Research* in Washington DC.

Registration and abstract deadline was July 6th but late registration is accepted until September 2nd. Please visit our website at www.riboclub.org/cgi-bin/RiboWeb/index.pl.

Looking forward to welcoming you in Orford next September.

Hallmarks of Cancer: Focus on RNA October 9th - 10th, 2015 Institut Curie, Paris, France

Organizers: Martin DUTERTRE and Stéphan VAGNER Co-organizers: Fatima MECHTA-GRIGORIOU and Antonin MORILLON Honorary organizer: Geneviève ALMOUZNI

Accumulating evidences support the importance of RNA biology in the hallmarks of cancer. Post-transcriptional steps of gene expression (pre-mRNA splicing and polyadenylation, mRNA stability, translation and modifications) as well as the functions of non-coding RNAs are increasingly diverse. It is therefore challenging to comprehend this complexity in the context of cancer.

<u>Keynote Speakers</u>: Gideon DREYFUSS (Philadelphia, US), Myriam GOROSPE (Baltimore, US), Douglas HANAHAN (Lausanne, CH), Nahum SONENBERG (Montreal, CA)

<u>Invited Speakers</u>: Oliver BISCHOF (Paris, FR), Robin FAHRAEUS (Paris, FR), Maite HUARTE (Pamplune, ES), Stefan HUTTELMAIER (Halle, DE), Rotem KARNI (Jerusalem, IL), Anders LUND (Copenhagen, DK), Poul SORENSEN (Vancouver, CA), Anne WILLIS (Leicester, UK)

The internationally renowned experts invited to this symposium will present the recent advances in our understanding of RNA biology in cancer. This will be complemented by at least 10 selected talks and 60 poster presentations. The symposium is intended to bring together RNA and cancer biologists. It is expected that the small size of the attendance (max 120) will foster stimulating discussions that will lead to innovative collaborations.

Symposium on RNA Biology XI: RNA Tool and Target October 16th - 17th, 2015

Durham, North Carolina, USA

The RNA Society of North Carolina welcomes you to the 2015 **Symposium on RNA Biology XI: RNA Tool and Target.** This symposium will bring together a prominent set of RNA scientists to discuss the latest achievements in RNA research. The conference will feature talks from both national and Triangle area scientists, as well as short talks selected from submitted abstracts and a poster session.

Keynote speakers include: Dr. Feng Zhang (MIT) and Dr. Dan Herschlag (Stanford University)

Planned sessions will cover:

- CRISPR-CAS
- RNA and Viruses
- RNA Splicing
- RNA: Genome Wide
- Ribonucleoproteins
- RNA Folding and Recognition



Registration and abstract submission for the meeting is currently open until September 1, 2015. Further details, including complete agenda, and registration can be found here: <u>http://ncrna2015.biochem.duke.edu/</u>. Thanks to the support of the **RNA Society** we will fund a number of travel awards for students and post docs to attend the meeting.

10th International Symposium on Aminoacyl-tRNA Synthetases October 18th - 22nd, 2015

Barcelona, Spain

The Aminoacyl-tRNA Synthetase (ARS) Symposium takes place approximately every two years with the goal of promoting the interactions within ARS research laboratories and with the rest of the RNA research community, both in academic research labs and in industry. The focus of the meeting is on the evolution, structure, function and biotechnology of ARSs, and their canonical and non-canonical roles in health and disease. For more information, please see the conference web site at http://www.aars2015.cat/

The Early Bird Registration and Abstract Submission deadline is July 31, 2015 but registration will be open until September 15, 2015.

<u>Keynote Speakers include</u>: Prof. Susan L. Ackerman (Jackson laboratory and HHMI), Prof. Nenad Ban (ETH Zürich), Prof. Matthias Hentze (European Molecular Biology Laboratory), Prof. Paul Schimmel (The Scripps Research Institute), and Prof. Dieter Söll (Yale University)

Seventeenth Annual Rustbelt RNA Meeting (RRM) October 23rd - 24th, 2015 Huron/Sandusky, Ohio, USA

Co-Chairs: Charles Hoogstraten (Michigan State University) and Blanton Tolbert (Case Western Reserve University) Co-Vice Chairs: Andrey Krasilnikov (Penn State University) and Jo Ann Wise (Case Western Reserve University) The seventeenth annual Rustbelt RNA conference (RRM), concerned with all aspects of RNA Science, will be held October 23rd and 24th, 2015, at the Sawmill Creek Conference Center in Huron, Ohio, on the shores of Lake Erie between Cleveland and Toledo and immediately adjacent to the popular Cedar Point amusement park. The primary mission of the RRM organizers is to provide an opportunity for trainees to be actively involved in the meeting. For the 2015 meeting, we will continue the long-standing tradition of selecting abstracts from students and post-doctoral researchers for oral sessions and highlighting the work of our additional attendees at poster sessions. This year's keynote lecturer will be **Professor Ron Breaker** of Yale University, a pioneer in multiple aspects of RNA Science including the discovery and continuing leadership in the study of small-molecule-RNA interactions in gene regulation (riboswitches). This major NSF-funded regional meeting is limited to 300 participants and has been completely subscribed in recent years, so early registration is recommended. Registration is scheduled to open on August 14 at the meeting website, <u>www.rustbeltrna.org</u>.

Gairdner Symposium : RNA and the New Genetics

October 30, 2015 8:45 a.m. – 3:30 p.m. University of Toronto, Macleod Auditorium

Focused on the research of **Dr. Lynne Maquat, 2015 Canada Gairdner International Award** winner, the Gairdner Foundation is hosting a one-day symposium devoted to recent groundbreaking studies and seminal discoveries in the field of non-coding RNA (ncRNA). This class of RNA performs many biological functions in the cell including protein synthesis and DNA replication. It has recently been realized that these mechanisms may be helpful in the treatment of many diseases such as aging, cancer, autism, Alzheimer's and other neurodegenerative pathologies. Speakers include:

Dr. Lynne Maquat, University of Rochester School of Medicine and Dentistry

- Dr. Phillip Sharp Koch Institute for Integrative Cancer Research, MIT
- Dr. Howard Chang Stanford University School of Medicine



- Dr. Jeannie Lee Harvard Medical School
- Dr. Benjamin Blencowe University of Toronto
- Dr. Joshua Mendell UT Southwestern Medical Center
- Dr. Emmanuelle Charpentier Hannover Medical School, Helmholtz Centre
- Dr. Feng Zhang McGovern Institute for Brain Research
- Dr. Erik Sontheimer University of Massachusetts Medical School

For more information contact : The Gairdner Symposia, Gairdner National Program, www.gaiedner.org

Regulating with RNA in Bacteria and Archaea

December 5th – 8th, 2015 Cancun, Mexico

Conference Chairs: Cari Vanderpool (University of Illinois), John van der Oost (Wageningen University), Gisela Storz (National Institutes of Health), Gerhart Wagner (Upsala University)

This is the fourth conference on Regulating with RNA in Bacteria and Archaea. The last three conferences were great successes with presentations of cutting-edge advances and the latest perspectives in the areas of discovery, mechanisms, structure and evolution of bacterial and archaeal riboregulators. This fourth conference will continue the tradition of excellent invited talks as well as the tradition of having speakers selected on the basis of submitted abstracts. It is anticipated that the conference again will bring together researchers of all stages using diverse approaches to study many aspects of RNA regulation in a variety of systems, thus facilitating cross-fertilization of ideas among investigators, postdoctoral fellows and graduate students. Please visit the conference website for more information or to register to attend - www.zingconferences.com/conferences/regulating-rna-bacteria-archaea-conference/

RNA UK 2016 January 29th – 31st, 2016 Lake District, UK

Organizers: Natalia Gromak, Nick Proudfoot and Lidia Vasiljeva

We are pleased to invite you to attend the RNA UK 2016 Meeting taking place January $29^{th} - 31^{st}$ at the Low Wood Hotel in beautiful Windermere, Lake District, UK.

The meeting covers all aspects of the RNA biology, including but not limited to: co-transcriptional and post-transcriptional processing, splicing, editing, export, translation, localization, stability/turnover, short and long non-coding RNAs, and RNA in disease.

We particularly encourage young scientists to attend and present at this meeting. Registration for this meeting will open in the fall 2015, and talks will be selected from submitted abstracts. For more information contact: Lidia.vasilieva@bioch.ox.ac.uk or natalia.gromak@path.ox.ac.uk.



Employment

Postdoctoral and graduate studentship positions in RNA synthetic biology at the Alberta RNA Research and Training Institute (ARRTI) Posted on July 17, 2015

The newly-established research group of Dr. Nehal Thakor is currently accepting applications for a postdoctoral fellow and graduate studentship positions in the research area of RNA synthetic biology. Applicants will ideally have experience in SELEX, RNA chemical probing, and RNA structure function analysis. Experience with RNA-seq and RNA bioinformatics will be an asset. The postdoctoral position is tenable for a period of one year, and may be extended depending on funding and performance.

Dr. Thakor is a Campus Alberta Innovates Program research chair in Synthetic Biology and RNA-based system. The Thakor lab (http://www.uleth.ca/artsci/biochemistry/thakor-group) is focused on RNA synthetic biology and protein translation regulation.

Interested applicants are encouraged to apply by contacting Dr. Nehal Thakor at <u>nthakor@uleth.ca</u>. Positions will remain open until filled.

<u>NIH-Funded Postdoctoral Position</u> Posted on <u>July 8, 2015</u>

A NIH-funded postdoctoral position for a highly self-motivated scientist is available in the ZZ lab at Carnegie Institution of Science, Department of Embryology. Research in our lab focuses on the impact of transposons during animal development, disease, and aging processes. We build tools to quantify the transposon activities and uncover the mechanisms that control transposons. The candidate will join a young and highly energetic family. Current research directions in our lab include:

1. Studying piRNA biogenesis and transposon silencing in animal (mouse and fly) germline.

2. Building transposition reporter system to probe transposition events.

3. Uncovering transposon control mechanisms in somatic cells.

4. Establishing genome-wide sequencing method to quantify DNA breaks.

Job requirements: Applicants should be creative individuals who are willing to ask big questions and challenge established dogmas.

Please email your C.V. and contact information of at least three references to Zhao Zhang (<u>zhang@ciwemb.edu</u>). For more information, please visit: <u>https://emb.carnegiescience.edu/labs/zhao-zhang</u>

Postdoctoral Position in Prokaryotic RNA Biology. Posted on June 24, 2015

I am seeking a qualified and motivated candidate to study the role of DEAD-box proteins in messenger RNA regulation in E. coli. The focus of the lab is on prokaryotic RNA metabolism, with particular emphasis on the cellular roles of DEAD-box proteins and ribonucleases. Candidates with a recent Ph.D. degree and a background studying any aspects of RNA metabolism in prokaryotes are welcome to apply. Applicants should send by e-mail (as a single PDF) a cover letter, CV, summary of research experience and contact information of three references. Email: cjain@miami.edu

Postdoctoral position at Johns Hopkins University Posted on June 22, 2015

A postdoctoral position is available in the laboratory of Dr. Ryuya Fukunaga at Johns Hopkins University School of Medicine. The laboratory is focused on understanding the molecular mechanisms of biogenesis and function of small silencing RNAs such as miRNAs, siRNAs, and piRNAs. We are also interested in post-transcriptional RNA regulation.



We employ a wide range of approaches that include biochemistry, Drosophila genetics, cell culture system, deepsequencing, and X-ray crystallography. We are looking for a highly motivated and enthusiastic new member of the lab. Candidates must have received (or be expecting) a Ph.D. or M.D. within the past five years in molecular biology, biochemistry, genetics, cell biology, structural biology, or a related discipline. Candidates with strong background in biochemical, molecular, cellular, and genetic analyses in RNA research are encouraged to apply.

More information is available at: <u>http://biolchem.bs.jhmi.edu/Pages/facultydetail.aspx?FID=755</u> Please email a cover letter, CV, a brief summary of research interests, accomplishments, and career goals, and contact information of at least three references to Dr. Ryuya Fukunaga at <u>fukunaga@jhmi.edu</u>

The Johns Hopkins Medical Institutions provide a stimulating and collaborative environment for biomedical research and is an Equal Opportunity Employer.

Postdoctoral position to study the structure and function of catalytic ribonucleoproteins, Penn State University Posted on June 4, 2015

A postdoctoral position is available in the laboratory of Dr. Andrey Krasilnikov at Penn State University. The successful candidate will be involved in NIH-funded study of the structure and function of catalytic RNPs with the focus on the enzymes of the RNase P/MRP family. Research involves a broad spectrum of approaches ranging from biochemistry and molecular biology to X-ray crystallography.

We are looking for a highly motivated and enthusiastic new member of the lab. Considerable experience in protein purification and/or RNA work is highly desirable; experience in X-ray crystallography is a plus, but not required (the successful applicant will have a chance to learn it if desired). Please submit your letter of intent, a short description of previous interests and achievements, your curriculum vitae, and contact information for three references to Andrey Krasilnikov (ask11@psu.edu).

NCI Laboratory Chief Posted on June 1, 2015

New position for NCI Laboratory Chief, similar to Department Chair. The Chief will have stable funding, renovated lab space and resources to hire two new faculty, each with their own space and funding. The Chief will also have the opportunity to incorporate existing CCR/NCI PIs into the new Laboratory/Department. Contact: maraiar@mail.nih.gov

Postdoctoral position at Johns Hopkins University Posted on June 1, 2015

Highly motivated postdoctoral candidates are invited to lead several new projects to address fundamental questions in Nucleic Acid Biology. Current directions in the lab include novel functions of DNA/RNA of unconventional structures, microRNA processing, and general RNA and protein homeostasis. Candidates with a strong background in biochemical, molecular, and cellular analyses of nucleic acids are encouraged to apply.

The Johns Hopkins Medical Institutions provide a stimulating and collaborative environment for biomedical research. Our lab is affiliated with the Department of Biochemistry and Molecular Biology of the Bloomberg School of Public Health and the Department of Neuroscience of the School of Medicine. The Baltimore/Washington D.C. area also offers rich professional and living opportunities.



Candidates should have a doctoral degree and strong research background. Please send a statement of research experience and career goals, a copy of Curriculum Vitae, and contact information of at least one reference to Dr. Jiou Wang at jiouw@jhmi.edu.

More information available at: <u>http://www.jhsph.edu/faculty/directory/profile/5049/Wang/Jiou</u>. The Johns Hopkins University is an Equal Opportunity Employer.

Department of Cellular and Molecular Physiology at Yale School of Medicine Posted on May 26, 2015

A postdoctoral position is currently available in the laboratory of Carson Thoreen in the Department of Cellular and Molecular Physiology at Yale School of Medicine. The laboratory is focused on understanding the molecular functions and physiologic roles of mechanisms that control the translation of mRNAs in response to cellular signals, especially those that are deregulated in human diseases such as cancer. We employ a wide range of approaches that include deep-sequencing (eg. ribosome profiling), bioinformatic and classical biochemical strategies. Creative individuals with a PhD or MD, and preferably a strong background in biochemistry and/or cell biology and a quantitative bent, are encouraged to apply. Applicants should send a current CV to carson.thoreen@yale.edu.

Postdoctoral Position Available to Study Structure and Mechanisms of Gene-regulatory Noncoding RNAs and Ribonucleoprotein Complexes. Posted on May 16, 2015

A postdoctoral position is available starting in the Fall of 2015 in Dr. Jinwei Zhang's group as part of the Laboratory of Molecular Biology (LMB) at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), in the National Institutes of Health (NIH)'s vibrant main campus in Bethesda, MD just outside of Washington DC. More details will become available at http://www-mslmb.niddk.nih.gov/

The laboratory aims to address a widening gap between the exponential growth of genome-wide discovery and functional description of the noncoding transcriptome, and a significant lack of three-dimensional structural information and mechanistic understanding of such complex noncoding RNAs. Initial projects include gene-regulatory riboswitches, stress-sensing Gcn2 kinase system, HIV and other viral RNA and RNPs.

The laboratory is established under the Earl Stadtman Investigator program, designed to facilitate high-risk, high-impact research (http://irp.nih.gov/careers/trans-nih-scientific-recruitments/stadtman-tenure-track-investigators). The research of the group is supported by the collaborative and interdisciplinary NIH intramural program consisting of more than 1100 labs and state-of-the-art equipment in structural biology (X-ray crystallography, Cryo-EM, SAXS, etc), biochemistry and biophysics core facilities with hands-on training provided by PhD-level support staff, genomics (RNA-seq), proteomics, and bioinformatics cores, flow cytometry and microscopy, etc. The NIH, NIDDK, and LMB are committed to the continued education and career development of trainees in many aspects such as numerous courses and workshops offered by NIH Office of Intramural Training & Education (OITE) and Foundation for Advanced Education in the Sciences (FAES), as well as intramural career transition funding (K grants) opportunities.

Requirements: Interested candidates must have received (or be expecting) a Ph.D. or M.D. within the past five years in molecular biology, structural biology, biochemistry, cell biology, or a related discipline, have excellent oral and written communication skills, and be strongly self-motivated to participate in and design innovative and rigorous research programs.

To apply: Please email a cover letter indicating preferred start date, CV, a brief summary of research interests, accomplishments, and career goals, and names and contact information for at least three references to: Dr. Jinwei Zhang, Email: <u>jinwei.zhang@nih.gov</u>. The NIH is dedicated to building a diverse community in its training and employment programs. DHHS/NIH is an Equal Opportunity Employer.



Establish the Role of RNA Stability and Editing in Bone and Cartilage Tissue Homeostasis and Disease Posted on May 16, 2015

A postdoctoral position is currently available in the laboratory of Drs. Michael Zuscik and Reyad Elbarbary in the Center for Musculoskeletal Research at the University of Rochester Medical Center (URMC). The primary focus of the research for this position is to establish the role of RNA stability and editing in bone and cartilage tissue homeostasis and disease. A second project will be related to our group's ongoing study of the pathogenesis of osteoarthritis and the associated development of chondroregenerative therapeutic approaches. Candidates with expertise and/or interest in the musculoskeletal and RNA biology fields are encouraged to apply. Experience in mouse genetics, husbandry, genotyping and surgery, nucleic acid analysis, IP/ Western blotting, histologic methods and immunohistochemistry and cell culture is desired. Please send a current CV and a brief personal statement describing your career plans to Michael Zuscik (michael zuscik@urmc.rochester.edu) and Reyad Elbarbary (reyad_elbarbary@urmc.rochester.edu).

