Universities with financially well-endowed genome centres provide easy access to sequencing and computer-savvy scientists and technicians. The leading US institutions for lncRNA research include Harvard, the University of Wisconsin–Madison, Stanford, the University of Colorado Boulder and Yale University in New Haven, Connecticut. In Europe, institutions including the University of Vienna and the nearby Research Center for Molecular Medicine of the Austrian Academy of Sciences have histories of RNA research, including lncRNA.

The Center for Life Science Technologies at the RIKEN Yokohama Institute, which opened this month, will focus in part on lncRNA. "We can develop technology for several years without the pressure of writing grants and publications because we have an institutional budget," says Piero Carninci, the first director of the centre's genomic-technology division, which will employ roughly 100 scientists, including 9 principal investigators.

Researchers investigating the role of lncRNAs in disease often collaborate with clinicians. Just such a partnership helped Claes Wahlestedt, now director of the Center for Therapeutic Innovation at the University of Miami Miller School of Medicine in Florida, to discover that a non-coding RNA drives the expression of an enzyme involved in the progression of Alzheimer's disease (M. A. Faghihi *et al. Nature Med.* **14,** 723–730; 2008).

When choosing a lab, researchers should remember that it can be an asset to have colleagues with a range of backgrounds, says Florian Karreth, a postdoc at Harvard Medical School in Boston, Massachusetts. "You don't want 20 people with a background in microRNA." In his group, he says, "there are people with experience in apoptosis, leukaemia and DNA repair, and it's great to learn from all of them". The 20 postdocs and a handful of graduate students and technicians often confer when starting experiments, and help each other to learn.

In the absence of a rich body of literature, ideas are often exchanged at conferences on RNA, epigenetics and genomics. As Valadkhan discovered, these are also good places to find jobs: senior scientists who attend may be looking for young investigators with creative ideas. Human lncRNAs are yet to be catalogued, and everyone wants to know more about their role in disease.

"I'm really looking for people who think originally and are very open," says Carninci. "It's a new field, and we know almost nothing. So it's important to find people who always question the dogma of the day." ■

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COLUMN

Time to reflect

A lab retreat provides a chance to rethink and advance the research programme, says **Eleftherios Diamandis**.

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Labs sometimes struggle to stay competitive and energized, and periods of successful discovery may be followed by stretches filled with little more than attempts to address knowledge gaps or promote translation. These are essential processes, but innovation may suffer if such periods last too long.

As director of a 25-person research lab (ten graduate students, five technologists, six postdocs, a research coordinator and affiliates), I know that focusing too much on the day-to-day business of e-mails, manuscripts and grant applications can delay the introduction of new techniques and ideas. One way to inject enthusiasm and re-excite the team is through a lab retreat to discuss everyone's projects and work.

The lab director generally sets the agenda for a retreat, but he or she should consider involving other lab members. Getting everyone on board is important: lab staff should understand that this is not an exercise devoted to identifying the 'good' and 'bad' projects or people, but is rather an open conversation about long-term planning to determine who needs help and how the director and other lab members might give it to them. Retreats can help to identify new strategies and areas where lab members are duplicating efforts on the same questions.

The director should circulate instructions ahead of time, explaining what he or she expects to be covered in the presentations and discussion. Constructive criticism should dominate. Participants should understand that this is not merely an update on research progress, but is instead a soul-searching exercise. Lab members should be asked to consider self-assessment questions such as 'Am I innovating or imitating?', 'Will my results lead to significant publications if successful?', 'Are there other techniques I should be using?' and 'Am I being too risk averse?'. Each person should address the novelty of their project as opposed to simply 'what they're working on'.

The lab supervisor might open the retreat with some remarks on each of the lab's research focuses, addressing the self-assessment questions as they pertain to the entire lab. Each member can then give a short presentation (perhaps five to seven slides) on his or her project, with special emphasis on innovations and anticipated research impacts.

Questions and criticisms must go beyond those at a typical lab meeting, where most questions focus on specific experiments and technical details. At the retreat, questions should examine appropriate approaches and even whether a project is worth pursuing at all. This may reveal that hypotheses or strategies have weaknesses that need correction — or that suggest that a project should be abandoned.

To promote debate, the director should consider assigning one or two lab members the role of devil's advocate. At my lab's retreat last year, one postdoc presented his findings on the anticancer properties of cardiac glycosides — drugs used to treat heart failure and arrhythmia — in a model of pancreatic cancer. The opponents challenged him, noting that his effective drug concentrations were ten times higher than the safety limit in humans — it might be possible to treat the cancer, said one, but the patient would die of cardiac arrest. Discussion followed on ways of retaining the anticancer properties but avoiding the toxicity. Another critic suggested that it could be possible to find a drug that acts with the cardiac glycoside, enhancing its anticancer activity at safer doses. After the retreat, this idea led the postdoc to perform a high-throughput screen of a 10,000-molecule chemical library to find such an agent. He is now testing a drug combination in animal models.

Lab directors are responsible for proposing and contemplating the direction that a lab will take in future. But retreats help to foster an annual re-examination of projects. Members need to recognize that the success of a lab depends on their capacity to innovate. In the end, all will share the rewards. ■

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