A Visiting Nigerian Biologist's Days at IOZ

By SONG Jianlan (Staff Reporter)

Dr. Ola at the Cell Culture Lab with a manipulating microscope on which he learned some experimental techniques. (Photo: SONG J.)

Beside a swinging centrifugal separator, Dr. Safiriyu Idowu Ola welcomed the author to his cozy "cabin" at the CAS Institute of Zoology (IOZ) in Beijing. Around him are busy PhD students of the Fertilization Biology group working in the molecular biology laboratory.

The group is part of the State Key Laboratory of Reproductive Biology based at IOZ, which made itself well known at home and abroad by successfully cloning a small herd of cattle from somatic cells in 2002.

"Last time I visited I stayed in the Graduate Students' Office. This time they have more students than in 2010, and hence no extra desk available, therefore I can only find a place in the lab." When asked how many hours he spent in the lab a day, he blurted out in a simple smile: "Oh, you know it is just like my home, my dormitory. Scientists have no weekend or holiday."

Ola enjoyed his busy research life at this institute, however. It appeared to him a familiar and comfortable place that sometimes wakened his nostalgia feelings when he was back in Nigeria. "I hope I can be back here every other year," he confided to the author.

This might explain Ola's repeated visits to IOZ. With the TWAS-CAS Postdoctoral Fellowship Program, he did his postdoctoral research at IOZ in 2005/2006, and then visited the same group in 2010 via the TWAS-UNESCO Associateship for Visiting Scholars, which provides for two visits within three years, so he came back again in September 2012 for a further stay of three months.

His previous visits to IOZ proved to be productive and rewarding. Based on his work in 2006 as a postdoctoral researcher, he published two papers in the international journal *Molecular Reproduction and Development*, respectively in 2007 and 2008. In the 2007 paper he reported the process of chromatin transformation in mouse oocytes from an NSN configuration to an SN one under meiotic arrest *in vitro*, hypothesizing that the transformation might not be influenced by the size of the oocyte as previously believed, but rather by the time for which the oocytes were cultured. In the 2008 paper he reported the effects of different hormones on enzymatically isolated follicle growth, oocyte chromatin organization and steroid secretion.

"He worked crazily hard, day and night," Prof. SUN Qingyuan, head of the group and his host at IOZ explained to the author: "You know he had only one year here doing

his postdoctoral research in 2006, and he had scheduled series of experiments to achieve meaningful results," SUN recalled, with a sympathetic but appreciating smile.

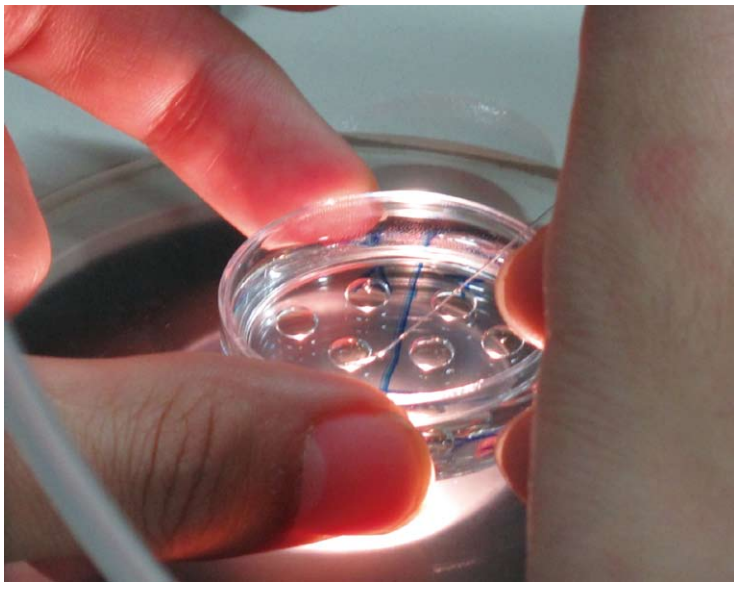
"Besides, I had many new things to learn," slightly embarrassed, Ola continued his story. "I needed to study many advanced techniques, only based on which could I have finished the whole project," he explained. "It was a difficult time for me. Actually such kind of fundamental research itself is very difficult. Very few people in my country can understand my papers, I would say," he added.

But eventually he made it. In only one year he finished all the necessary experiments, collected enough evidence for his research and managed to publish two papers.

During his three-month visit in 2010 he reviewed what had been done in his field since his publication of 2008 and further published a review paper in the Japan-based *Journal of Reproduction and Development* in 2012. In this work he tried to identify the critical factors influencing the quality of an oocyte, which could affect the potential of an egg to properly develop into a healthy embryo. By understanding the molecular mechanisms governing the quality of an oocyte, reproductive biologists want to find a reliable, noninvasive marker for choosing the best oocytes/eggs without compromising their survival. The selection of eggs is critical for *in vitro* fertilization, which is an important approach to understanding the process of reproduction. Also, choosing a good egg is necessary in some cases where the scientists need to assist infertile couples to reproduce.

"I mainly do fundamental research here, which will be useful to my applied research back in Nigeria," he said.

According to Ola, it is very difficult to do fundamental research in Nigeria, because it demands heavy funding and reasonably good facilities. "You need very good equipment and well-maintained infrastructure, you need constant supplies of reagents, electricity and tap water, and you need strong support of scientific literature to track the latest developments in your specialty and, to get good ideas. These are all hard to get in Nigeria. You know licenses to the scientific journals are very expensive. " "Furthermore," He went on: "some advanced technologies



1 "Warm host": Dr. Ola poses with his host, Prof. SUN Qingyuan (left), who is a leading scientist at the State Key Laboratory of Reproductive Biology at IOZ. (Photo: SONG J.)

2 Dr. Ola is seen working in the lab on the electrophoresis gel analyzer in 2006.(Photo: By courtesy of Dr. Ola)

3 An experiment to select oocytes under the microscope at the Lab Dr. Ola visits. The advanced facilities here make it possible for him to do fundamental research that is important for his applied research back to Nigeria. (Photo: SONG J.)

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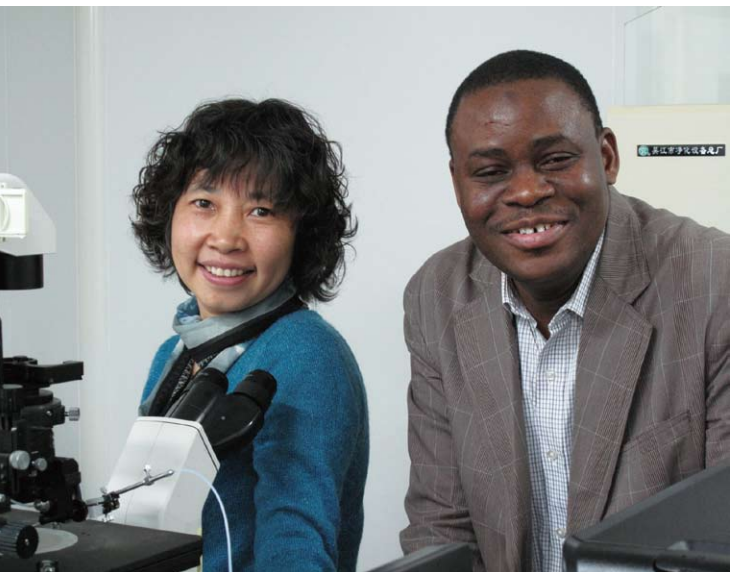

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are highly funding intensive. A life maintaining system, like an incubator that can mimic the *in vivo* environment of an animal, is extremely expensive. But you need this if you do *in vitro* live culture studies."

Teaching at the Department of Animal Sciences, Obafemi Awolowo University of Nigeria, Dr. Ola also does some applied research when funding is available, focusing on livestock reproduction and breeding. "We breed livestock animals, just like this, the cane rat," he showed the author a photo of the rodent on his laptop. He had just highlighted his work on the cane rat days before in a presentation at the Inner Mongolia University (IMU) in northwestern China. "We try to improve the reproductive performance of some livestock animals in Nigeria, which will benefit the food supply in my country. And I hope what I have discovered here will inspire my further work back home."

Ola was then writing another review paper and meanwhile learning some experimental techniques at the Lab. In a much more strictly sterilized and administered culture laboratory he showed the author some of the devices he learned to operate. He spent two months at this lab to learn advanced techniques that might be necessary in his future research.

"This is my teacher," Ola excitedly introduced to the author a lady working with the micro-manipulator: "She taught me many things." Among the devices he learned to operate was a big microscopic injector, under whose lens bioactive matter including mRNA, SiRNA and morpholino could be injected into an oocyte or other reproductive cell.

"So far such sophisticated techniques are not involved in his experiments, but he wants to learn them for his future research," explained Dr. WANG Zhenbo, Ola's fellow back in his postdoctoral days and now an assistant professor in the same lab at IOZ. "He is a good guy, very hard working and nice," Wang told the author about his fellow.

Visiting IOZ again, Ola happily reunited with his former fellow researchers from his postdoctoral days, including Dr. WANG. "He helped me a lot when I did my postdoctoral research here. He taught me experimental skills and translated for me around; therefore I could deal with my work easily in the institute."

1 Cane rats under domestication at Dr. Ola's university in Nigeria. (Photo: By courtesy of Dr. Ola)

2 "My teacher": Dr. Ola poses with Ms. OUYANG Yingchun, a technician at the lab. He learned a lot of techniques after her. (Photo: SONG J.)

3 "Buddies": Visiting IOZ again, Dr. Ola reunites with his former fellow, Dr. WANG Zhenbo, who is now an assistant professor at IOZ. (Photo: SONG J.)

Ola kept in contact with many of his former colleagues at IOZ, following their progress in professional development. “I just visited Dr. LIANG Chengguang’s group at the Inner Mongolia University of China. They had a wonderful lab there, brand new, a whole building!!”

Regrettably, it is a pity for Ola that he did not get a chance to learn Chinese language, despite his multiple visits. “They never taught me Chinese, otherwise I would have been able to live here easier,” he complained in a joking tone.

His host Prof. SUN admitted that this could be something yet to improve, in the knowledge that some countries, like Germany, Korea and Japan, provide visiting scholars with free language courses. “We could do something similar in the future,” he said.

Dr. Ola would leave IOZ in the middle of December 2012. “I hope I will be able to continue some of my work started here when I am back at home,” he said. He got some apparatus like inverted microscope, electrophoresis sets and quantitative PCR machines through IOZ as a donation, via an aid program funded by the Chinese Ministry of Science and Technology. “I submitted my application to the Ministry together with some supporting materials, including the papers as the outcome of my previous visits. Prof. SUN helped me fill out the forms and complete other paper work,” he recalled.

Dr. Ola is just one of the singers in the international choir of science occurring at CAS. Prof. SUN’s lab has received a woman fellow from Pakistan and many visiting scholars on short visits. IOZ has also received postdoctoral researchers from India and France. For scientists or PhD students from foreign countries, CAS provides various funding programs, including the CAS Young Scientist Fund and the Program for Senior Visiting Scholars.

All this takes place against the backdrop of China’s ambitious plan to build an innovation-oriented nation. Something new is rising from the horizon and science activity is becoming more and more global at CAS. For instance, CAS has newly recruited several prestigious researchers from around the world through the national talent program called “One-Thousand Talents Program”, which is open both to Chinese and foreign outstanding scientists. One of them, according to Prof. SUN, even moved his whole lab here from UK.

A picnic picture of Ola’s group back in 2006. (Photo: By courtesy of Dr. Ola)