By early 2014, Dr. Jonathan and his team had found a way to make stem cells from just a finger-prick's worth of blood. The impact of the research was tremendous. Not only did it point to more effective and potentially inexpensive methods to harvest stem cells from readily available sources, it also meant that scientists could study the genetic and epigenetic factors of diseases with greater ease.

CRACKING THE CELL CODE

Science has always been in his blood. Always tinkering with experiments and obsessively checking off completed projects on his then Singapore Science Centre Club card, Jonathan Loh's childhood had all the hallmarks of a scientist-in-the-making. "Science Centre is near my home and I used to go there with my friends all the time," Jonathan reminisces. "The nights when the observatory was open were really memorable!"

Today, the stem cell scientist is a rising star in his field. His passion for science early on had led him to pursue biotechnology at the Singapore Polytechnic and later biology with the National

Dr. Jonathan Loh Yuin-Han
Principal Investigator
Institute of Molecular and Cell Biology (IMCB)

University of Singapore. "It was a critical turning point then, when I had to decide if I should pursue science after graduation. Fortunately, it was also at a time marked by milestone developments in biology and the conclusion of the Human Genome Project," Jonathan remembers. "When A*STAR announced its graduate scholarships in 2003, I made up my mind to apply and the Genome Institute of Singapore was where I did my graduate studies."

"My thirst for knowledge is the driving force that keeps me going in research."

It's In The Blood

Since then, Jonathan has been making headlines. In 2009, his work drew international recognition when his team became the first in the world to derive stem cells from blood cells.

Recalling the breakthrough, Jonathan says, "The inspiration came when Kyoto University successfully reprogrammed adult skin cells into stem cells. I was doing my post-graduate research at the Boston Children's Hospital then and observed that taking skin samples was a painful process for the patients. That was when the idea arose that blood cells could perhaps be a better source."

Jonathan pushed on to further refine the method. By early 2014, his team had found a way to make stem cells from just a finger-prick's worth of blood. The impact of the research was tremendous. Not only did it point to more effective and potentially inexpensive methods to harvest stem cells from readily available sources, it also meant that scientists could study the genetic and epigenetic factors of diseases with greater ease.

"From these stem cells, we can make differentiated cells. This means we can look into a whole spectrum of issues such as the replacement of cells and preventing diseases," shares Jonathan. "For instance, we can look at pushing the blood cells of Alzheimer's patients into stem cells and from there, convert them into neuron cells. This will help us investigate the disease in more detail than before. It is all very exciting."

Community Matters

The mild-mannered investigator may look like an introvert at first glance but that is an impression far from the truth. "Yes, I enjoy going for long, solitary runs every day, to reflect on my work and encounters but outside work and after the runs, my time is really for my family and friends. I regularly organise alumni meet-ups and get-togethers. Relationships and community are important to me," declares Jonathan.

This belief in human connections shapes his approach to science as well. "Science is a community kind of work," Jonathan explains. "All of us need criticism, advice and questions from researchers in other fields to do better. In my laboratory, I make sure that there is plenty of discussion and interaction. We work collaboratively not just within laboratories but between laboratories as well, because the different areas of expertise can bring diverse perspectives."

On a fun note, Jonathan makes sure to set aside time for another community of science enthusiasts – the Singapore Association for the Advancement of Science. "There are all kinds of people in the association, from entrepreneurs and retirees to scientists and teachers. We sit around and think about how to advance science education in Singapore and I've learned many new things from them!" says Jonathan.

It is little surprise that Jonathan sees his work in a bigger social picture. "Scientific knowledge and technological breakthroughs are crucial to a society's progress," Jonathan muses. "Singapore has invested in policies, infrastructural development, funding and talent attraction. Through my work, I see myself playing a small role in contributing to Singapore's growth. We started from nothing and now we have something. Let's build on it, so that we can develop greater R&D capabilities."