The Stem Cell Concept

'Our concept of stem cells is a beautiful story that follows the classical scientific method. Which is, the observation of a phenomenon in real life that we don't understand, so we try to explain it and formulate hypotheses, then we go into the lab to test these hypotheses.

With the new data, we come back and we try to re-explain the phenomenon, we re-formulate new hypotheses, we go and test again in the lab and through this process, we end up in a place where we have a very good understanding, a complete explanation of the phenomenon and this is when we are said to have made a discovery. This is really what happened with our concept pertaining to stem cells.

15 years ago, an article was published in the scientific literature, the title of this article was 'turning blood into brain.' It was a study in which scientists documented how stem cell in circulation in the blood stream had the ability of migrating in the brain to become brain cells. Around the same time, other scientists documented as well that stem cells in circulation could go into the heart and become heart cells and also go into the liver and become liver cells.

On the basis of that data, what we started to think, we formulated an hypotheses that stem cells actually constituted the natural repair of the body. It was just an idea 15 years ago, a lot of research has been done and if we fast forward, here's what we know today about stem cells and the natural role of stem cells in the body.

Any time there is an injury or there's a problem somewhere in the body, the affected tissue will release compounds that will circulate in the blood stream to the bone marrow and will trigger the release of stem cells to the bone marrow. Within 3 to 5 days after the injury, the number of stem cells in circulation will increase 3 to 10 fold. As these stem cells are circulating in the blood stream, they don't know where to go, they don't know which is the tissue that is in need of repair.

What happens is that after the 3 to 5th day, in that time frame, the affected tissue will release other compounds that will attract stem cells to that tissue. What happens is that the stem cells are circulating everywhere in the body, when they circulate in the fine blood vessels of the affected tissue, they will be called out of the blood circulation, they will migrate in the tissue and upon contact with cellular debris of that tissue, the stem cells will multiply, will, proliferate and will transform into cells of that tissue. This is the natural repair system of the body.

Now in this whole system, we need to release stem cells from the bone marrow, they need to circulate, they need to migrate, they need to proliferate and they need to transform into cells of that tissue. All these steps in the process are important, but the one that was the most
studied was the relationship between the number of stem cells in circulation and the ability of
the body to repair. And in this way, the conclusion is that more stem cells in circulation are
available to participate in the process of tissue repair and the body has more stem cells to use
in order to better repair.

So if we take, for example, 2 individuals with identical problems, the ones with more stem
cells in circulation will repair faster and better, this is the general conclusion. Now out of a lot
of these studies, another observation has been made. This to me, is probably the most
important message, because all of this work has been done with diseases, but what does it
mean for somebody who is healthy. This is where this is going. All this process, that has been
studied with regards to an injury and pertaining to tissue repair, also takes place in the body of
someone who's completely healthy without any problem.

Everyday of our lives, the bone marrow releases stem cells and these stem cells will migrate
into tissues replacing the cells that have been lost. Everyday of our lives, we lose cells, in all
the tissues of our body, all the organs of our body are losing cells every day, but these cells
are being replaced by stem cells everyday.

And as long as we replace stem cells, that we renew these tissues as fast as we lose cells,
we stay healthy. The problem comes when we do not renew our tissues as fast as we're
losing cells. This takes place as we age. As we age, we have fewer and fewer stem cells in
circulation, so cellular loss gains ground. So really health in the body is a balance between
these 2 phenomenon, cellular loss on one hand and tissue renewal on the other hand.

If we can support tissue renewal and have enough stem cells to renew tissue as fast as we
lose cells, we stay healthy, it really is that simple.

Sometimes, I compare this to bankruptcy. If I ask the question, do you go bankrupt because
you have lost your money? Intuitively, you would say yes, I went bankrupt because I lost my
money, but in reality we don't go bankrupt because we lost our money, we go bankrupt
because we lost our income. It is the income that makes the whole difference. It's the same
thing with our health.

It is the income in terms of stem cells to the tissues that will allow the tissue to stay healthy.
So anything we can do to support the natural role of stem cells in the body, then let's do it,
because it's going to help maintain optimal health. This is leading us to, I believe, a novel
understanding of health because the best of medicine today, and it's not a criticism, it's just an
observation of reality. The best in medicine is preventative medicine.

To go back to our financial analogy, it's like saying in order to be wealthy, let's try prevent
poverty. Preventing poverty is never going to help anyone be wealthy. To be wealthy, we need
a strategy for accumulating wealth.

It's the same thing here, we will never have optimal health if what we're doing what we're
doing is preventing diseases. All these discoveries and this understanding about the natural
role of stem cells in the body is giving us a new understanding about health and wellness.

We can go way beyond just the absence of problems, we can give back the body it's natural
ability to build health, to repair and renew tissues. So it's when we understand all of this, we
understand the importance of supporting natural role of stem cells in the body. It is with this whole understanding, that at Cerule, we have focused our development and our research on products that support the release the stem cells from the bone marrow with StemEnhance Ultra, the circulation of stem cells in the body with PlasmaFlo and the migration of stem cells in various tissues with Cyactiv.

- Christian Drapeau, CSO, Cerule