



## **“SIGMOLECS™ technology is based on what you call adaptive medicine, can you explain?”**

Yes. Evolution and progress are givens, so it is necessary to find salvage in novel medical modalities that can extend the species and help it adapt. At the same time, we slow down degenerative processes and aging when we do this. But in order to accomplish this, we need specialized molecules that can transfer information to cells and genes. And to get them, we need to understand the biological pathways involved in the events of adaptation and what can happen along the way that causes disease and debilitating aging.

The mapping of the genome began the process, and today we've got more advanced profiling techniques, so that we are able to find and to use very specific molecules to program the repair, or the regenerative processes, specific to tissues right in the patient.

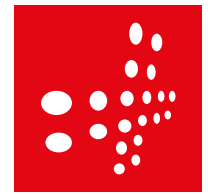
Regeneration involves an intricate array of molecules, mostly proteins that signal specific pathways. So now, the most minute physiological task can be controlled or directed with the right combination of these signaling molecules. For example, how large molecules cross cell membranes. A very common example is cholesterol, especially Very Low Density Lipoprotein (VLDL). This bad cholesterol gets into tissue because of two little signaling proteins: mia and tango ...they sound like cartoon characters and actually they are very much like cartoon characters. Just like all signaling molecules, they can spring, leap and bound around cells leaving a trail of commands in their wake that translates to specific biological activities.

So when properly sequenced, these signals code a program of repair and regeneration, and reset the Cell Cycle. Most of these signaling molecules are naturally found in organisms; all organisms, even insects, have them, and they are instrumental in helping species adapt to the changing environment by counteracting the deficits set by environmental changes like pollution and even cognitive deterioration from pollutants and stress.

The discovery of signaling molecules and their pathways is the new era of technology in medicine. I like to refer to it as “adaptive medicine”. It is kind of clinical ecology at its best. We now have the techniques to synthesize these naturally-occurring molecules, but the combination and format, i.e. their structure or isoforms, are key in creating formulations that can signal physiological changes in the body. In other words, you must present the data in a language the body cells understand in order for the body to be receptive and to process your final product.

The molecules used in the formulations have to be identical to the natural counterpart from the body or from a natural compound like food. Much like stem cells, the communicating molecule is exactly like the patient's own biological factors; it becomes the medicine that instills regenerative processes.

All this biological activity starts at the cellular level, so once you signal the cells with specific direction, they will induce mechanisms and pathways that are far-reaching to tissues and organs. The technology behind SIGMOLECS™ uses these types of very specific molecules to engage the regenerative pathways in the patient.



So that is one arm of the technology, but once you have the targets and language coded, you need to get those molecules to the cells' environment... so getting beyond the skin barriers and the cell wall barriers; it is altogether another technology and that part is formatting it into a bioavailable product. Of course, this technology is complex and proprietary, but suffices to say that it is geared to penetrate the skin to deep tissue and to deliver its cargo to the cellular environment. It has to be able to get its programmed code to cross cell membranes to get the signals to organelles like the mitochondria.

And of course, the cell membrane is the 'happening place' so there is a lot of the signaling molecule technology involved in cajoling the membrane to be receptive to our deliveries, or to our products... like having a free pass into a private club.

In a nutshell, we use SIGMOLECSTM technology to provide end products with an overall:

- Better subcellular targeting and drug delivery, which means that the delivery vehicle is highly efficient. Always hits its target with the package intact. That is the program – like inserting a microchip of instructions into the cells of a patient;
- More precise signaling of specific physiological functions;
- Higher expression of cellular affinity and response;
- Higher bioavailability and circulating half-life. Which means that the metabolites, or the break-down components, are actually usable by the body. So, there is either little break-down waste. In other words, the endless reaction, such as those needed to break down nutraceuticals and supplements, is avoided. No digestion, no depletion of the body's energy to break down the product. And this is important, because the old-style supplements have to be broken down by the body in order to access the component, or components you want to deliver. The message to the cells is what we deliver. This is always a more precise targeting solution: to hit your pathway or tissue. SIGMOLECSTM technology is precise, and rather than delivering large supplements, it delivers information.
- So we can drastically reduce the working dose of the active principle or drug.
- Best of all, SIGMOLECSTM is a unique technology that enables several different forms of delivery, all of which are non-invasive. We've got patches that are replacing injections in clinic, for example. They can deliver actives to deep tissue comparable to injections, and actually deeper in some cases than injections.

So, SIGMOLECSTM is truly unique and precise in its application. It can be formatted into many different delivery venues that target precise tissue, organs, cell lines in a very precise physiological fashion, following the natural pathways of the body.