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Post-conference Report

8^{th} World Biomaterial Congress

Amsterdam, the Netherlands, May 28-Jun 1

The world biomaterials congress is held every four years and it is aimed to provide the crossing frontiers in biomaterials and regenerative medicine. Throughout the conferences, there were nine symposiums running at the same time period with four time sections, plus one time section for poster discussions on each day. The overwhelming scientific information posted on the conference demonstrated the fast developing of current biomaterials field. As indicated by Dr. Antonios Mikos from Rice University, the United States, who is an expert on tissue engineering, most directions in tissue engineering are under-developed with progress index below 5. As shown in the figure 1, the progress of each direction is scaled from 1 to 10, correspondingly delegating its status from starting to complete. This clearly shows that there are still a lot of spaces for tissue engineering to move forward, which needs the tremendous work of us to propel the growth of this area. Moreover, the complicated interrelation between different directions indicates hybrid knowledge over a wide scope of areas is a necessity for the development of each direction. This means that besides learning and exploring on the directions we are on, the basics as well as news on other directions are those we should also pay attention and explore.

Besides general thoughts over this field as above, I am also inspired by the ideas presented on the symposiums. Take my field, vascular tissue engineering as an example, there is a talk on panel of VASCULAR APPLICATION OF BIOMATERIALS, which focuses on solving the problem of mechanical mismatch of small diameter vascular graft through mimicking the microstructure of vascular matrix. As we know, the failure of small diameter (ID<6mm) vascular grafts are mainly due to thrombogenicity of endothelium on engineered vascular graft or mechanical mismatch at sites of anastomosis. There are many groups working on them, but none of them tried to mimic the microstructure of the vascular matrix in order to solve the mechanical problem. In their talk, they engineered a device to parallel the polyurethane (PU) fibers and then stretched them as PU is a highly elastic biomaterial then embeded polycaprolactone (PCL) fibers in-between, which are relatively rigid. It then leads to the waved structure of this engineered scaffold (Figure 2), which assimilates the wave-like microstructure of natural vascular matrix, therefore they are potentially matching the compliance with natural vessel. In term of creativity, this idea is novel yet the mechanical properties of hydrated not only dry condition of this wave-like composite scaffold are required to be tested to confirm their hypothesis. But all in all, this talk encouraged us to think out of the traditional frame and find out interesting results.

Thanks for the supports from International Travel Award Program, Graduate study office, my school as well as my P.I. I appreciate your help very much, for giving me the opportunity to show our data as well as learning from others.

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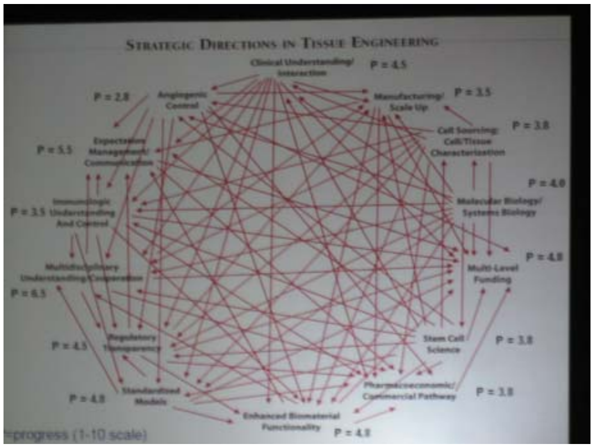

Figure 1. Strategic Directions in Tissue Engineering

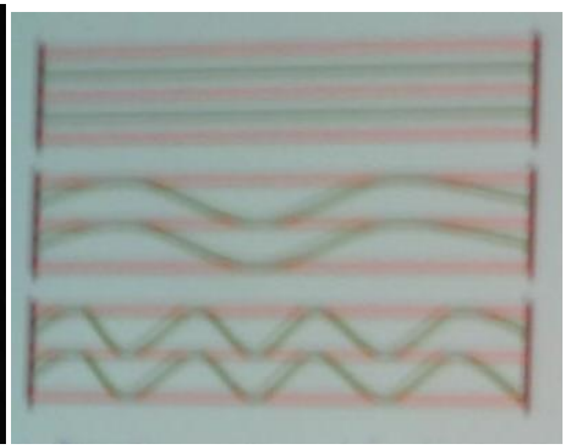

Figure 2. Schematic Deign of Vascular ECM