Tissue Engineering Applications in Medicine

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Res Med Eng Sci at the bench. These include: data integrity, responsible reporting, and dissemination of results, as well as ensuring that every study is designed and conducted so that it can yield results suitable to decide on the next research steps. It is important to realize that, at any stage, the results of well-designed and properly conducted research might not lead forward, but back or in a different direction than expected. It is also important to refine and expand knowledge at an earlier stage of the research or to explore and develop newly identified possibilities [4].

The use of animal models at preclinical stages remains vital to the success of tissue engineering research. Efforts are being taken to reduce the use of animals, but potential alternatives like computer modeling and body-on-a-chip organdie have significant limitations and require considerable further development. Researchers must consider the three Rs of animal research in this case-Reduce, Refine, and Replace. The choice of animal models and their humane and appropriate use helps to ensure that the research transition from animals to humans adheres to principle of “modest translational distance” described by Jonathan Kimmerlman. Translational distance (TD) refers to the number and size of inferential loops from animals to humans-in other words, it measures uncertainty [4]. In order to move from preclinical to first-in-human and other early stage trials, several questions must be answered in the affirmative:

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