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Левенець В., Коломієць Д.-ст. гр. РБ-11
Тернопільський національний технічний університет імені Івана Пулюя

ТКАНИННА ІНЖЕНЕРІЯ В РЕГЕНЕРАТИВНІЙ МЕДИЦИНІ

Науковий керівник : Петришина Л.Й., доцент Ковалюк Б.П.

Levenets V., Kolomiyets D.
Ternopil Ivan Pul'uj National Technical University

TISSUE ENGINEERING FOR REGENERATIVE MEDICINE

Supervisor: Petryshyna L.,Kovalyuk B.

Ключові слова : Біомедична інженерія , імпланти , біоматеріали , тканинна інженерія , протези.
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The article is devoted to the problem of regenerative medicine which has become of special importance in Ukraine nowadays.In the modernd world the problems of tissue engineering is very urgent, because of limited supply, immune rejection and other concerns regarding use of transplants, most of the need for human spare parts is provided by implants; nearly 5 000 000 per year.

It started around 1980. A little later, periodontal and alveolar bone tissues were attempted to regenerate with use of membranes that ensure the maintenance of the site for tissue regeneration by preventing fibroblasts from invasion there (guided tissue regeneration and guided bone regeneration). Vacanti (1988) studied the cell transplantation using bioabsorbable synthetic polymers as matrices, while Wakitani (1989) reported the repair of rabbit articular surfaces with allograft chondrocytes embedded in collagen gel. A review article presented by Langer & Vacanti (1993) with title 'Tissue Engineering' has greatly contributed to the promotion of tissue engineering research worldwide.

Tissue engineering as a branch of the biomedical engineering has appeared in the XIX century being caused by problems of regenerative medicine.

The leading countries in the production of implants and prosthesis are: USA, Germany, France, Italy.The famouse companies are: Arion Laboratories, GC Aesthetics, Hans Biomed, CSIRO etc.

Generally speaking Ukraine faces many problems in this branch caused by the economic and political situation. But last time Ukrainian scientist have started used 3-D printing in the regenerative medicine. It is cheaper and doesn't need human for donation. That's why the problem can be of interest for the students whose major is biomedical engineering.