عنوان مقاله:

Lung tissue engineering: from whole organ bioengineering to organ on a chip

محل انتشار:

اولین کنگره بین المللی مهندسی بافت و پزشکی بازساختی ایران (سال: ۱۳۹۷)

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خلاصه مقاله:

Introduction The rate of lung diseases has been increasing for decades. Lung transplantation is the only treatment for the majority of patients, but this method has been limited due to lack of donors. Therefore, recently, attentions have increased to some new strategies with the aid of tissue engineering and microfluidics techniques for both the functional analysis and drug screening. Objectives This article aims to review new advances in lung bioengineering and lung on a chip research fields. Methods In lung tissue engineering, engineered tissue can grow by using the patient sown cells eliminatingthe need for immunosuppression after implantation. Regarding drug testing, microfluidics devices are appliedto evaluate drug screenings, function analysis, and toxicity. Results Since lung tissue has complex structure, toachieve better matrix and overcomechallenges in scaffold preparation,decellularized scaffoldswere suggested to use in re-seeding process. In addition,micro-devices allow for online monitoring andanalysis during which are not feasible by other conventionalmethods. ConclusionIn conclusion, investigations on pulmonary therapy are in its infancy. Givenpromising works performed in this field, furtherstudies are required to find more information about critical points, to produce fully functional engineered lung tissue

کلمات کلیدی:

Lung tissue engineering, Lung on a chip, Regenerative medicine, Organ bioengineering