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Abstract

E-BABE-Numerical Investigations of Liver-on-a-chip platforms

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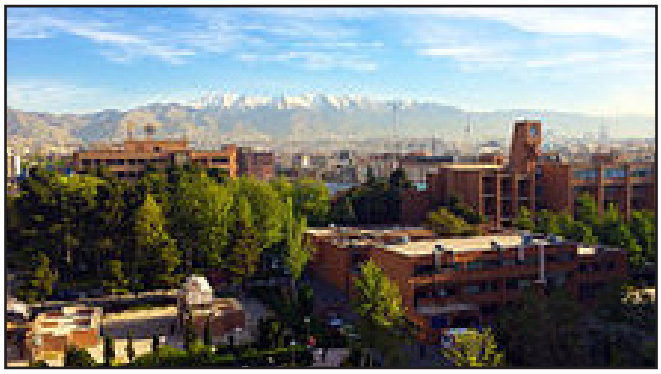
Abstract:
Miniaturized culture systems of hepatic cells are emerging as a strong tool facilitating studies related to liver diseases and drug discovery. However, the experimental optimization of various parameters involved in the operation of these systems is time-consuming and expensive. Hence, developing numerical tools predicting the function of such systems can significantly reduce the associated cost. In this presentation, some of the developed mathematical models of liver-on-a-chip platforms will be disscused. The numerical models includes design and optimization of microfluicis, metabolic model for prediction of some of the cellular activities and some related disease modeling. The obtained results could be beneficial in providing the suitable and optimized conditions for future in vitro experiments. The presented numerical models provides a numerical platform which can help researchers to design and optimize complex bioreactors and obtain numerical indexes of the main metabolites in a very short time prior to any fabrications. Such numerical indexes can be helpful in certifying the outcomes of forensic investigations.

Biography:
Fatemeh Sharifi has completed her PhD from Sharif University of Technology. She was also a research trainee at Harvard MIT division of Health and Science and Technology.



Publication of speakers:

- Fatemeh Sharifi et al ; Microfluidic manipulation of core/shell nanoparticles for oral delivery of chemotherapeutics: a new treatment approach for colorectal cancer, 2016 Nov 5
- Fatemeh Sharifi et al ; Performance optimization of microreactors by implementing geometrical and fluid flow control in the presence of electric field: a computational study, 2015 Sep 6
- Fatemeh Sharifi et al ; Three dimensinal modelling of high intensity focused ultrasound brain tomur treatment using finite element simulation method, 2010 Oct 18
- Fatemeh Sharifi et al ; A numerical model for predicting hepatocytes ureagenesis and its related inborn enzyme deficiencies: Case studies,2019 Dec 3
- Fatemeh Sharifi et al ; Numerical modeling of ureagenesis in a microfluidic channel mimicking a liver lobule,2015 April 13

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