

Ηράκλειο, 2/10/2020

ΑΝΑΚΟΙΝΩΣΗ

ΠΑΡΟΥΣΙΑΣΗ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Τίτλος

« Synthesis and characterization of biodegradable diblock and triblock copolymers for ocular drug delivery »

Φεργάδης Γεώργιος Δημήτριος

Φοιτητής

Τμήματος Επιστήμης και Τεχνολογίας Υλικών, Πανεπιστημίου Κρήτης

Επιβλέποντες: κ. Βαμβακάκη Μαρία, κ. Μητράκη Άννα

Τετάρτη 7/10/2020, και ώρα: 10:00

Link τηλεδιάσκεψης: <https://teleconf.materials.uoc.gr/b/sta-2w0-x11-mgv>

Η παρουσίαση θα πραγματοποιηθεί με τηλεδιάσκεψη σύμφωνα με το τρίτο άρθρο, παρ. 1, της με αριθμ. 115744/Ζ1/4.9.2020 Κοινής Υπουργικής Απόφασης (Β'3707).

Περίληψη:

Ocular drug delivery presents major scientific challenges due to the presence of several dynamic and static obstacles in the eye, such as the blood–ocular barrier, tear formation and the low permeability of the cornea. In the present work, we aim to develop biocompatible polymeric nanocarriers for the effective encapsulation and delivery of drugs to the eye. In the first part of this thesis, amphiphilic poly(ethylene glycol)-*block*-poly-L-lactide (PEG-*b*-PLLA) diblock and PLLA-*b*-PEG-*b*-PLLA triblock copolymers, of different block lengths, were synthesized. The successful synthesis of the polymers was verified by size exclusion chromatography and proton nuclear magnetic resonance spectroscopy. Next, the polymer nanocarriers were prepared using two different methods (self-assembly from a non-selective in a selective solvent and thin film hydration). The size of the nanoparticles was determined by dynamic light scattering and their morphology was confirmed by scanning and transmission electron microscopies. Finally, the encapsulation and drug release profiles of the nanocarriers, were assessed using a model hydrophobic dye, Sudan Red, to simulate the ocular drug. The drug loading and release kinetics were monitored by ultraviolet/visible spectroscopy.