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## Comparison of KrF and ArF excimer laser treatment of biopolymer surface

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### Abstract

The goal of this work was the investigation of the impact of two different excimer lasers on two biocompatible and biodegradable polymers (poly-L-lactide and poly hydroxybutyrate). Both polymers find usage in medical and pharmaceutical fields. The polymers were modified by KrF and ArF excimer lasers. Subsequently the impact on surface morphology, surface chemistry changes, and thermal properties was studied by means of confocal and AFM microscopy, FTIR and XPS spectroscopy and DSC calorimetry. Under the same conditions of laser treatment it was observed that ArF laser causes more significant changes on surface chemistry, surface morphology and pattern formation on the polymers under investigation. The data obtained in this work can be used for a wide range of possible applications, in tissue engineering or in combination with metallization in electronics, e.g. for biosensors.

**Keywords:** biopolymers; excimer laser; nanostructuring; surface modification; surface chemistry

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