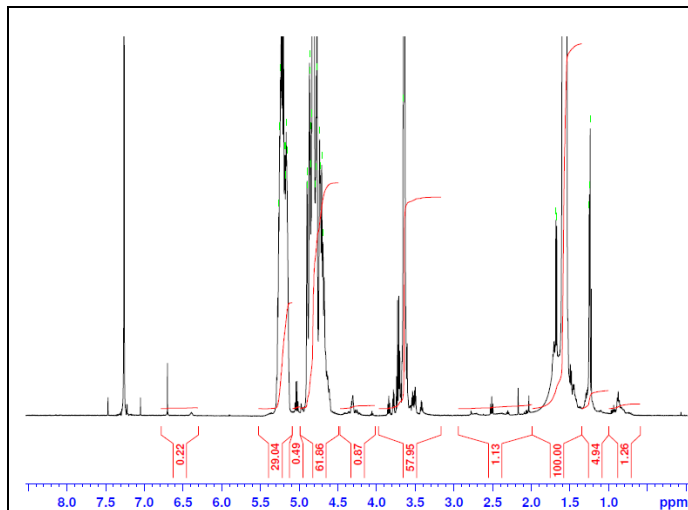


No. AI110

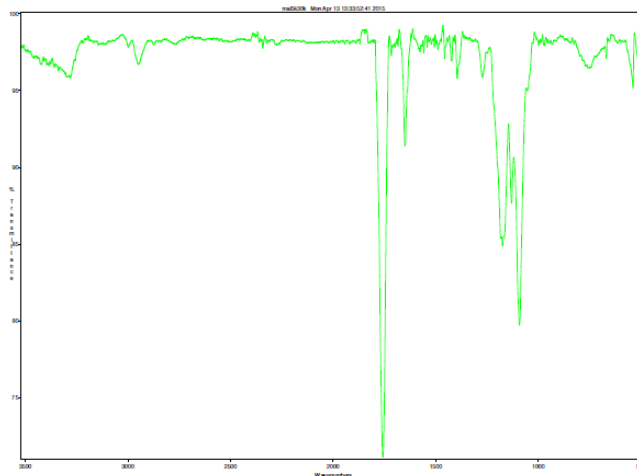
Certificate of Analysis



Product Name: Poly(lactic-co-glycolic)-b-Poly(ethylene glycol)-Maleimide Copolymers ($M_w \sim 30,000-5,000\text{Da}$) (Lot#: 50402JSG)

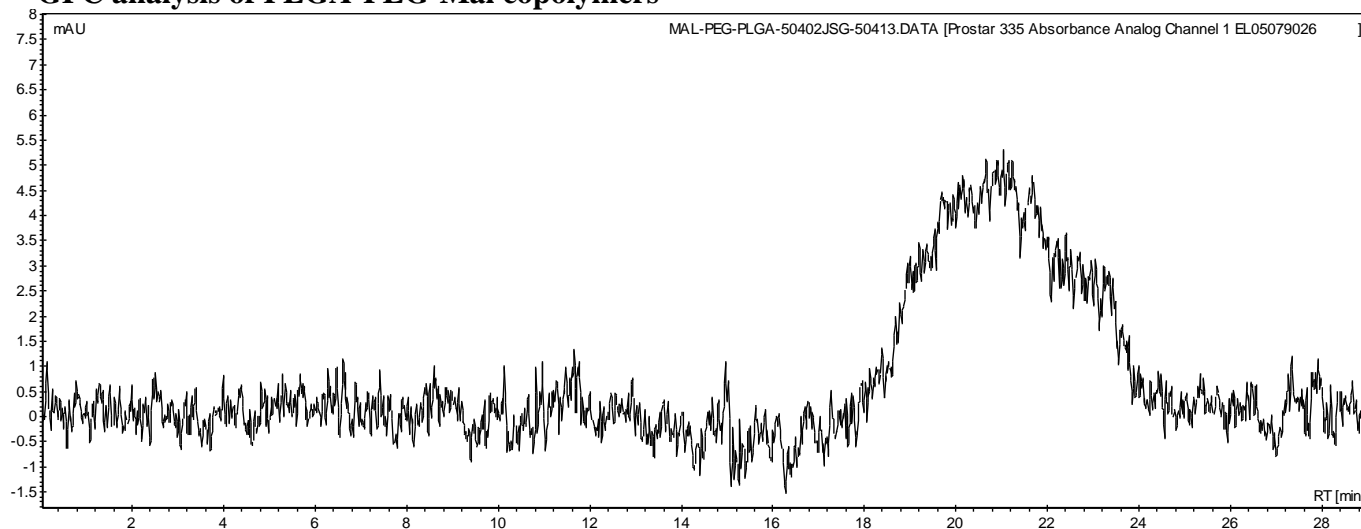


$^1\text{H-NMR}$ Spectrum of PLGA-PEG-Mal copolymers in CDCl_3 (Varian Inova 500 MHz instrument), NMR of PLGA-PEG-Mal repeat units: EG-LA/GA = 103*-206/220 (M_n EG-LA/GA = 4,538*-14,865/12,763) *Data provided by manufacturer



FTIR Analysis: Collected from cast-film on salt-plate placed in Satellite FTIR (Thermo-Mattson) and analyzed in transmission mode.

• GPC analysis of PLGA-PEG-Mal copolymers

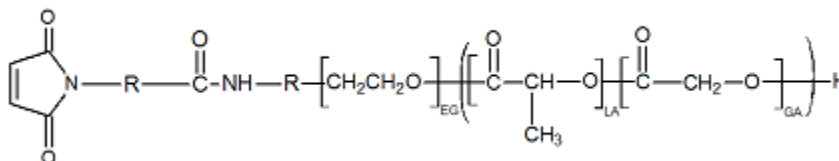


Analysis Method: Varian Prostar system with 1 ml/min DCM flow across two Phenogel 5 μm columns and one Resipore column (Agilent). Detection via UV/Vis, calibrated against polystyrene standards.

Polymer	M_n (from GPC)	M_w (from GPC)	PDI
PLGA-PEG-Mal	10585	30806	2.91
PEG Precursor	Average M_n by GFC - 4500*		

*-data provided by manufacturer

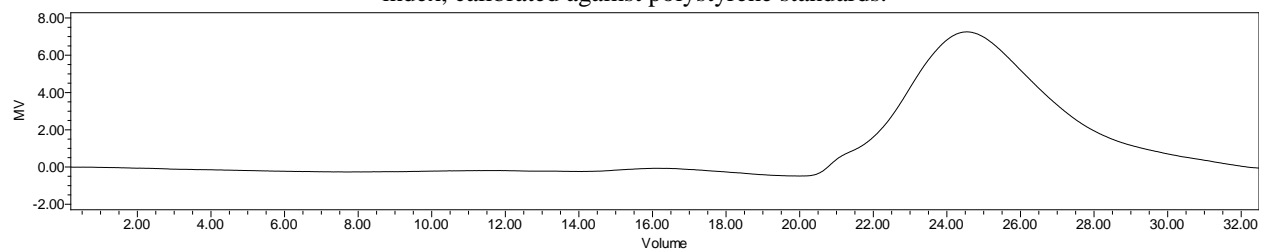
• Structure of PLGA-PEG-Mal copolymers



UPDATE: AI110 50402JSG: GPC Retest 9-7-2018

GPC reran on prior lot. Earlier GPC performed using Varian Prostar system. Updated data provided by Water's Breeze system as detailed below

GPC Analysis Method: Waters Breeze 2 system with 1 ml/min THF flow across three GPC columns. Detection via refractive index, calibrated against polystyrene standards.



Mn	Mw	PDI
18,993	38,061	2.00