Fully biobased triblock copolymers generated using an unconventional oscillatory plug flow reactor

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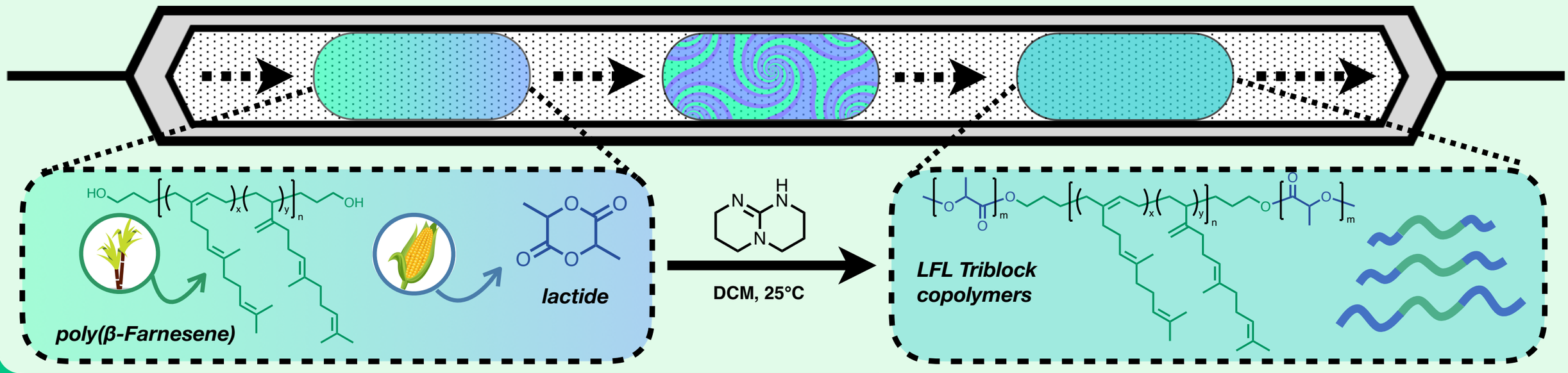
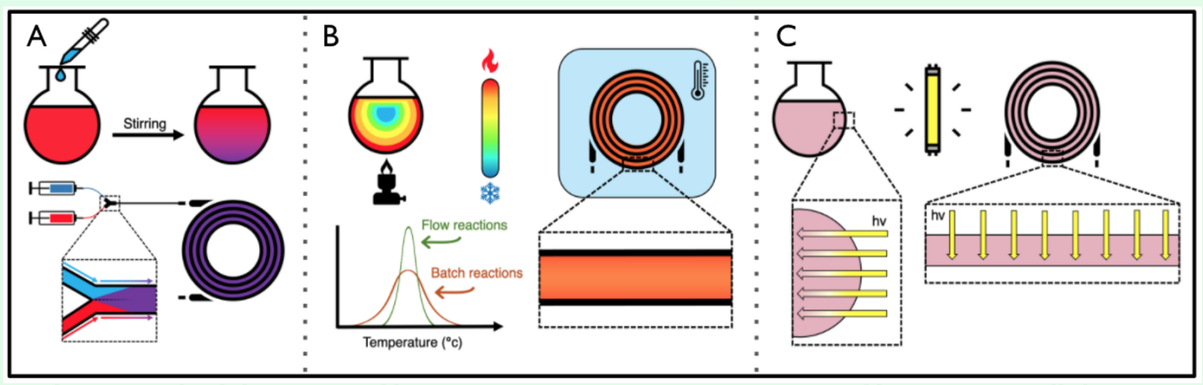
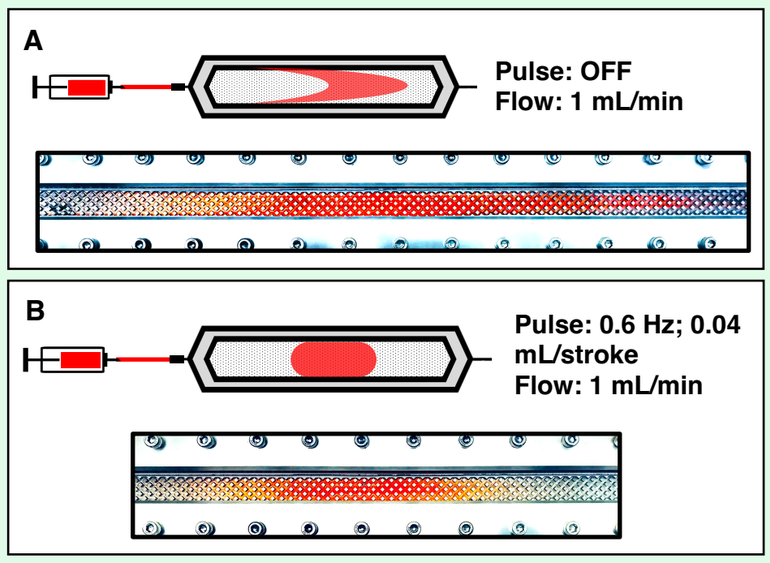
Block copolymer synthesis in new-generation flow reactor



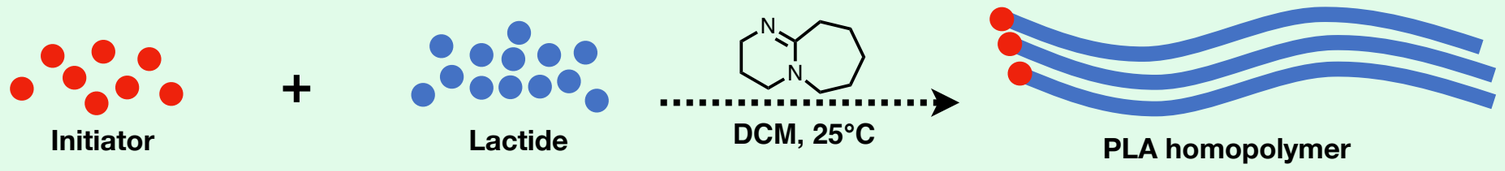
Benefits of flow chemistry



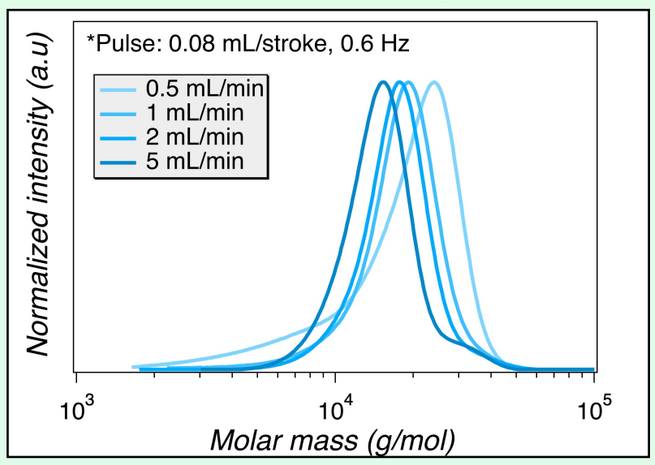
Increased mixing efficiency | Homogenous temperature distribution | Homogenous light irradiation



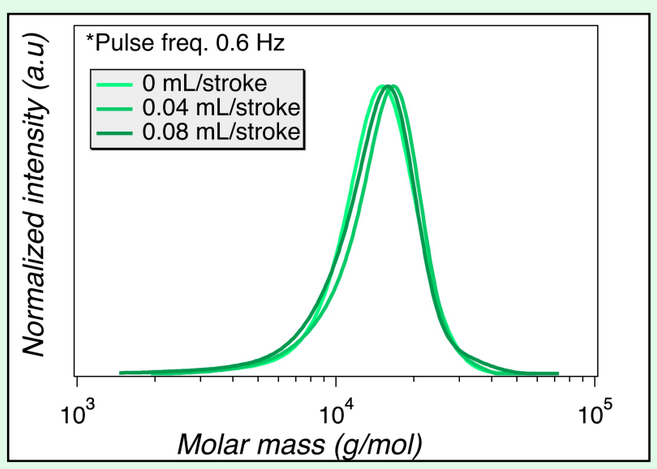
PLA homopolymer analysis



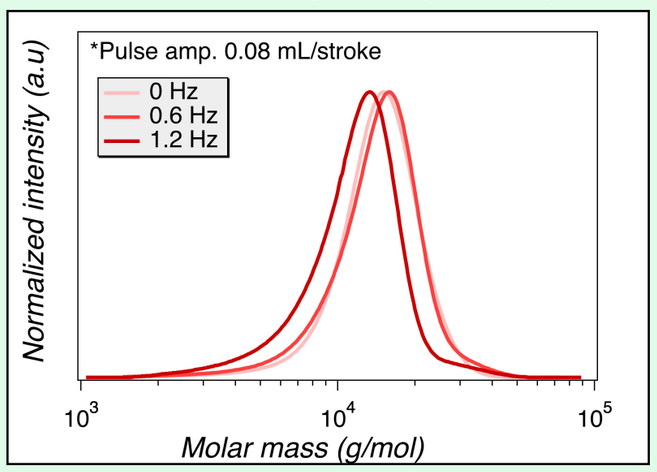
Flowrate analysis



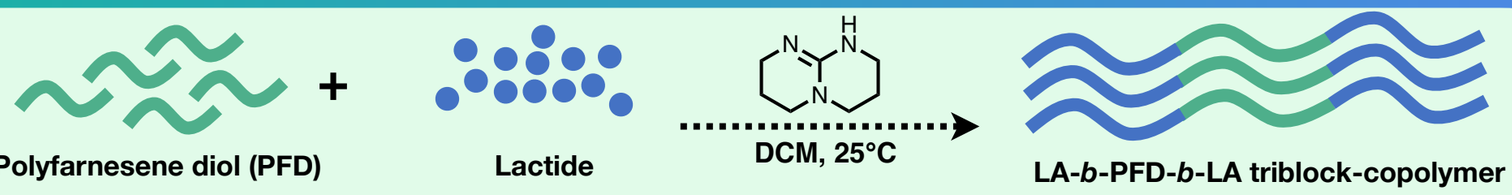
Pulsation amplitude analysis



Pulsation frequency analysis



Block copolymer analysis

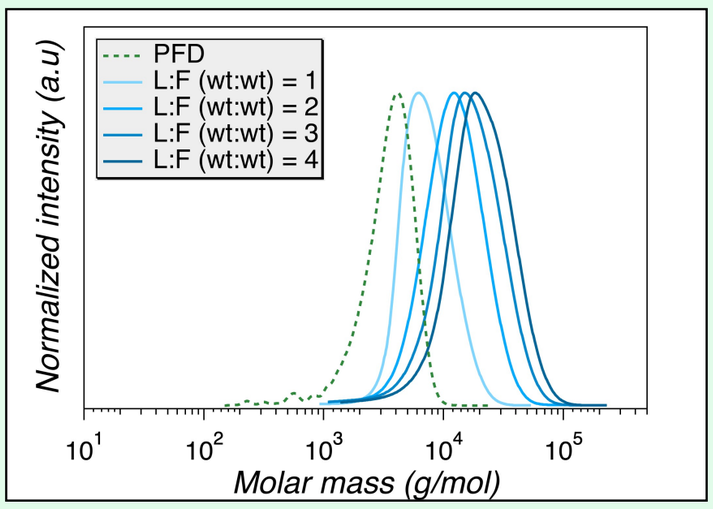


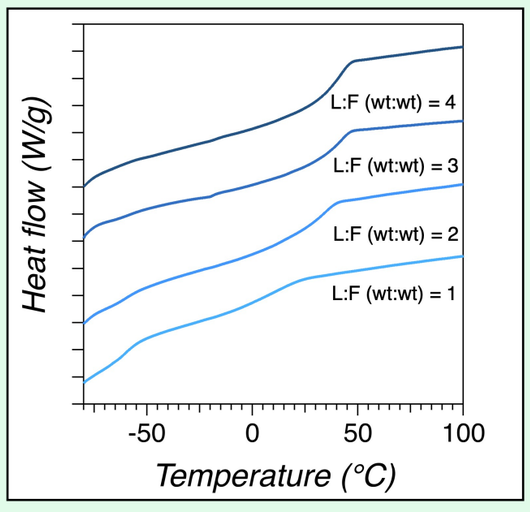
Lactide:PFD = 4

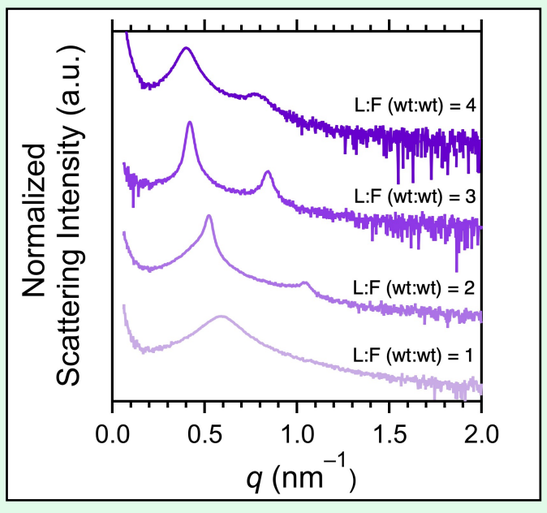
Lactide:PFD = 3

Lactide:PFD = 2

Lactide:PFD = 1







SEC and DSC analysis of the synthesized block copolymers suggest an increased molecular weight attributed to the higher PLA composition by means of a more pronounced, right-shifted T_g. SAXS analysis alludes to various block copolymer self-assembly configurations as the ratio of lactide monomer to PFD initiator is changed in situ.

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