Title:	Synthesis and characterization of stimuli (multi) responsive poly (N-isopropyl acrylamide) - block-poly (L-proline)
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Abstract:	The central theme of this thesis is to develop a stimuli(multi) responsive block copolymer with potential biomedical applications. Thermal and solvent responsive polymers can be a fresh contribution to the field, despite the fact that there are numerous other stimuli- responsive block copolymers. Initially, a thermoresponsive Poly(N-isopropylacryamide) homopolymer was produced with varied polymer chain lengths using the ATRP technique and the chain end group was modified with a complementary functional group for postpolymerization. For this purpose, a suitable initiator with an aldehyde end group was successfully synthesized. Additionally, another homopolymer Poly(L-proline) which is with pH, solvent responsive, helical polypeptide properties was synthesized by ring- opening polymerization technique. Finally, the objective of this project is to synthesize PNIPAM-block-PLP copolymers using CuAAC-based click chemistry and study the temperature-dependent phase transition of PNIPAM blocks with different lengths in the presence of PLP blocks. The synthesized organic compounds and polymers were characterized by 1 H NMR, 13 C NMR, GPC, CD, FT-IR, mass, and temperature-dependent UV-spectroscopies.
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