

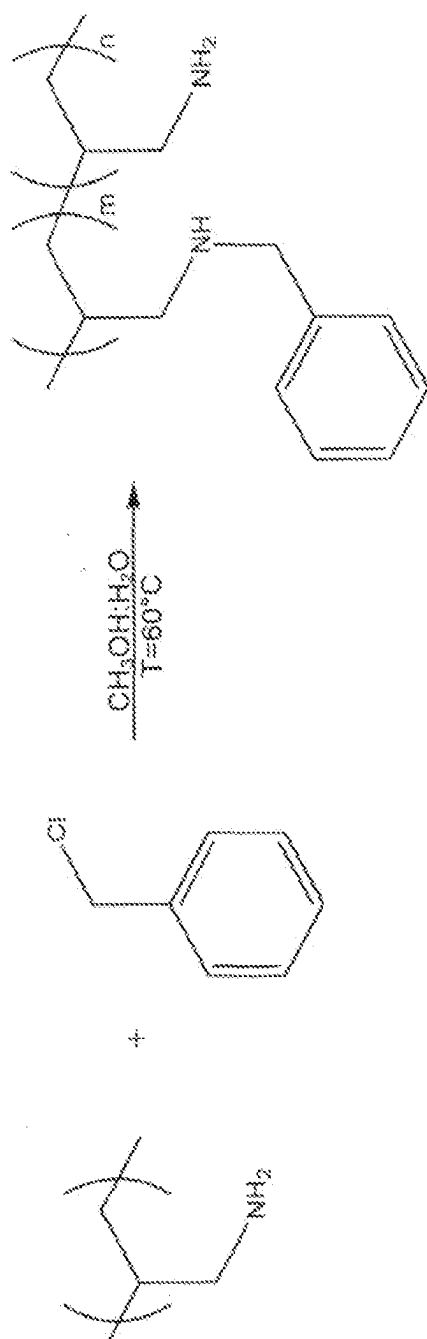


Figure 1. Reaction of polyallylamine with benzylchloride. The letters "m" and "n" represent the different types of monomer units in the polyelectrolyte backbone.

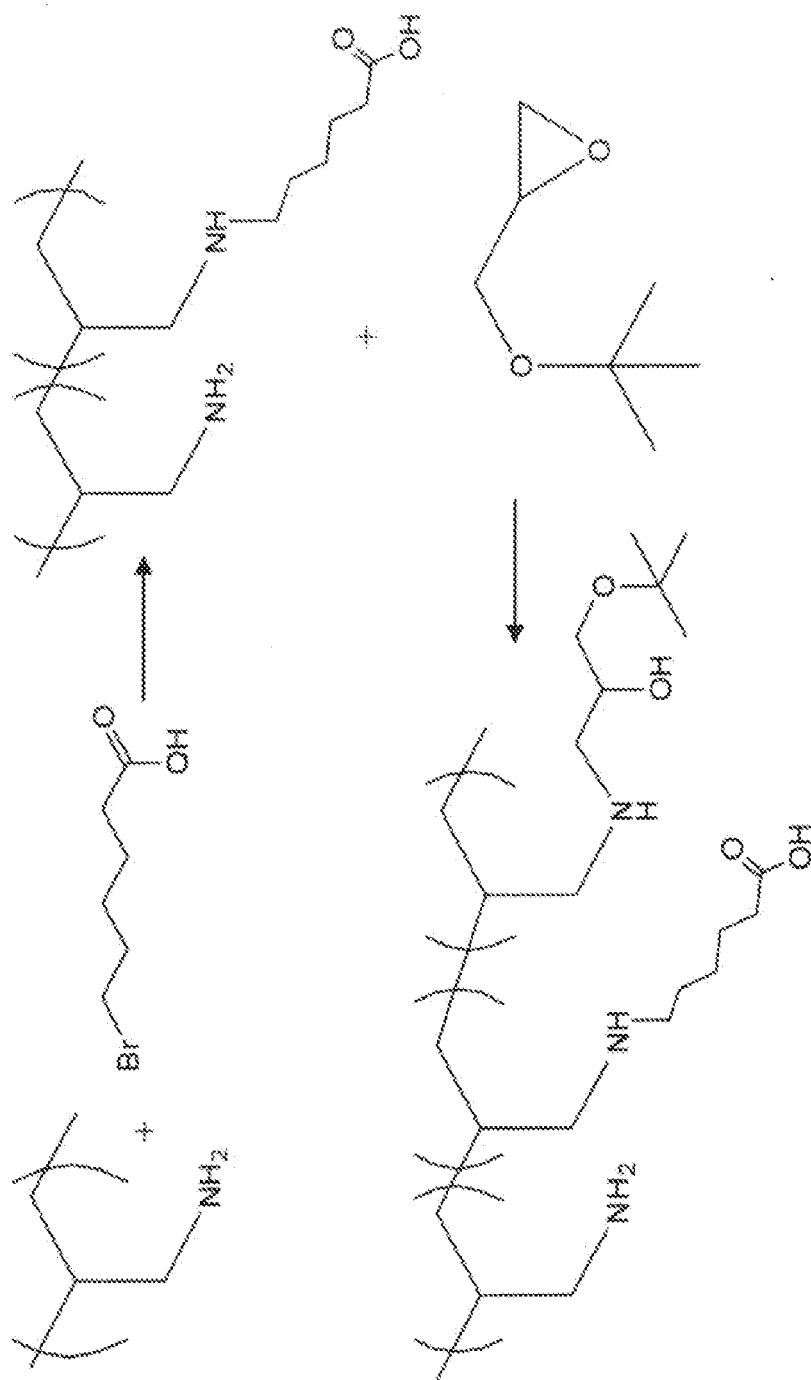
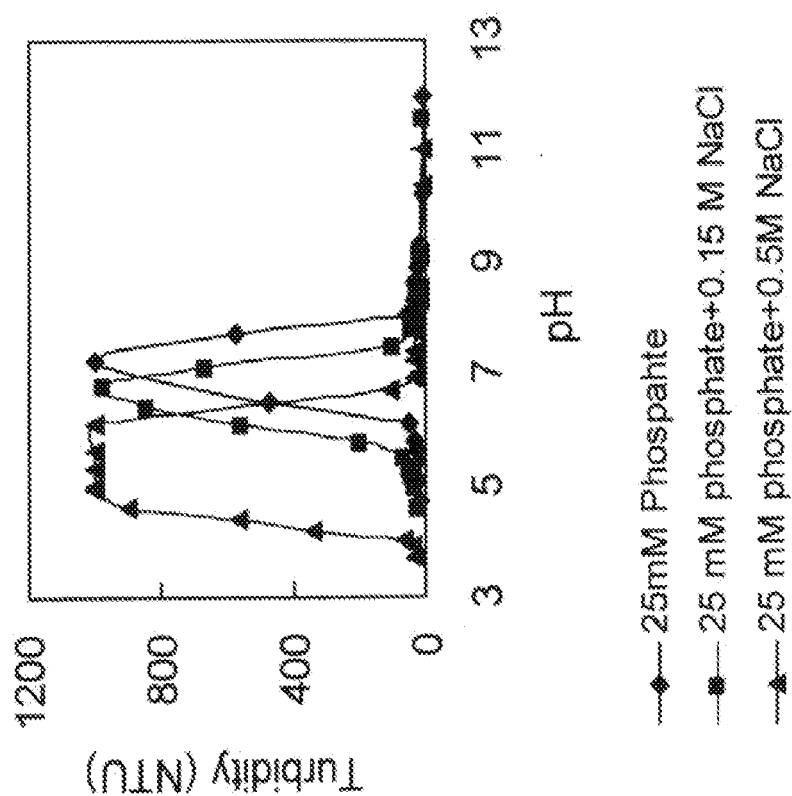


Figure 2. Reaction scheme for hexanoic acid and tert-butyl modified polyallylamine (HC-t-BuMPAA)



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Figure 3. Effect of sodium chloride on the multivalent stimulus of hexanoic acid and tert-butyl modified polyallylamine (HC-t-BuMPAA)

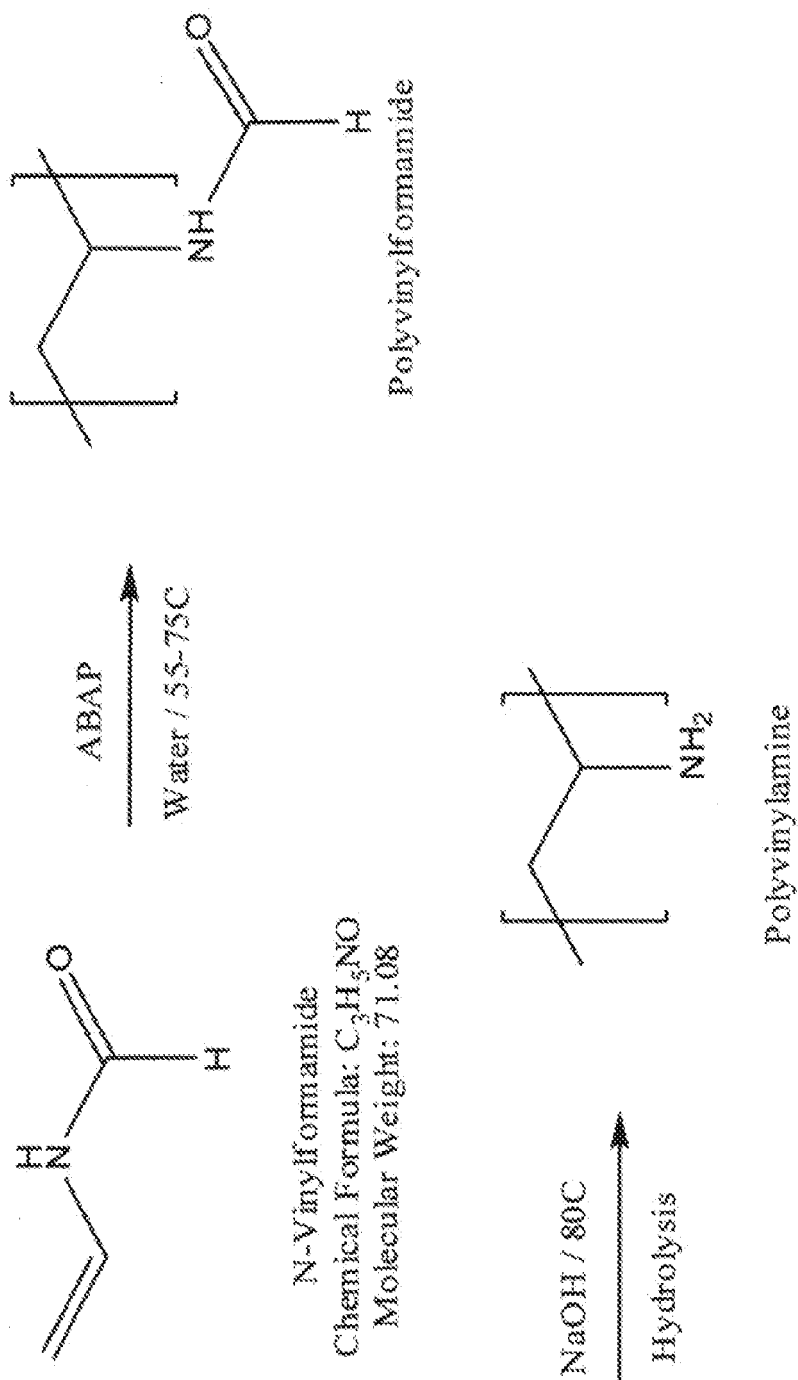


Figure 4. Synthesis of Polyvinylamine, as described in Example 29

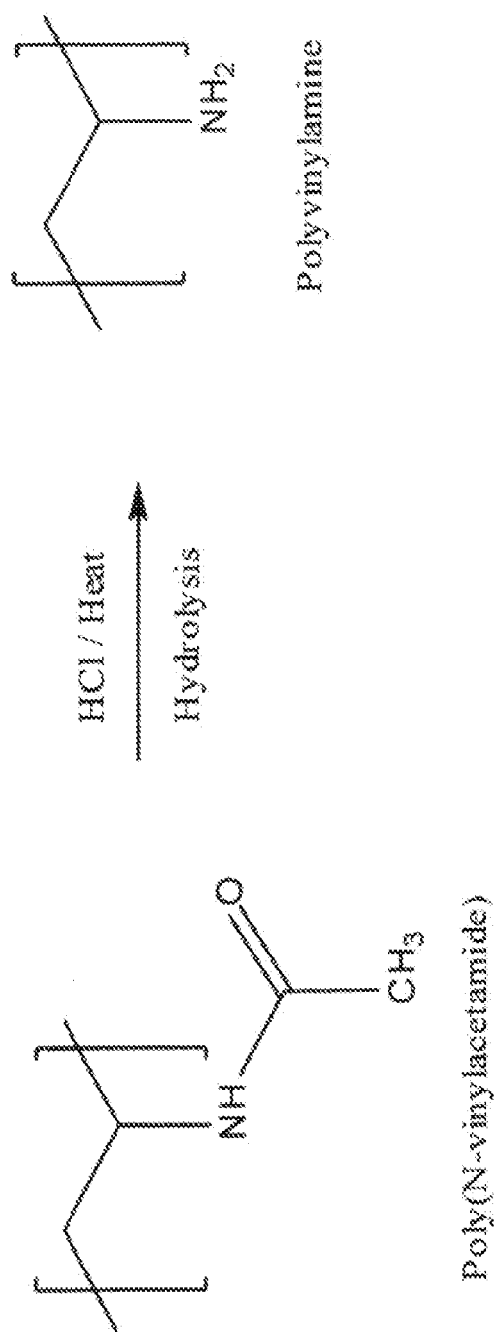


Figure 5. Deprotection of polyamine after polymerization.

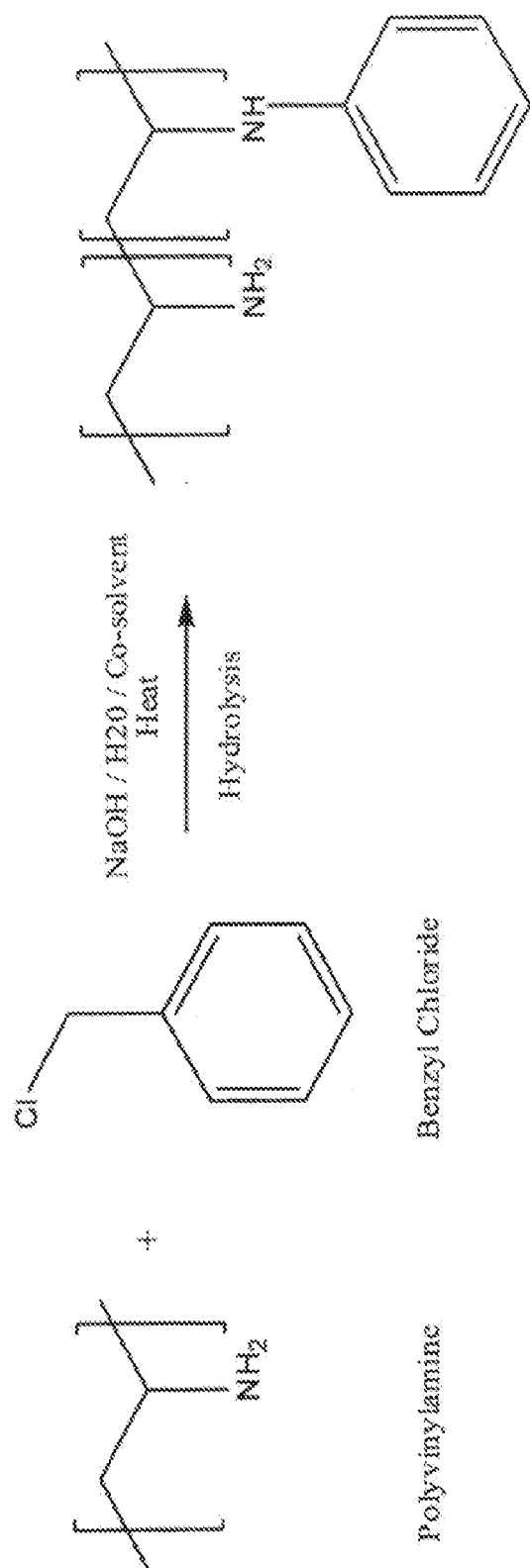


Figure 6. Reaction of polyvinylamine with benzylchloride.

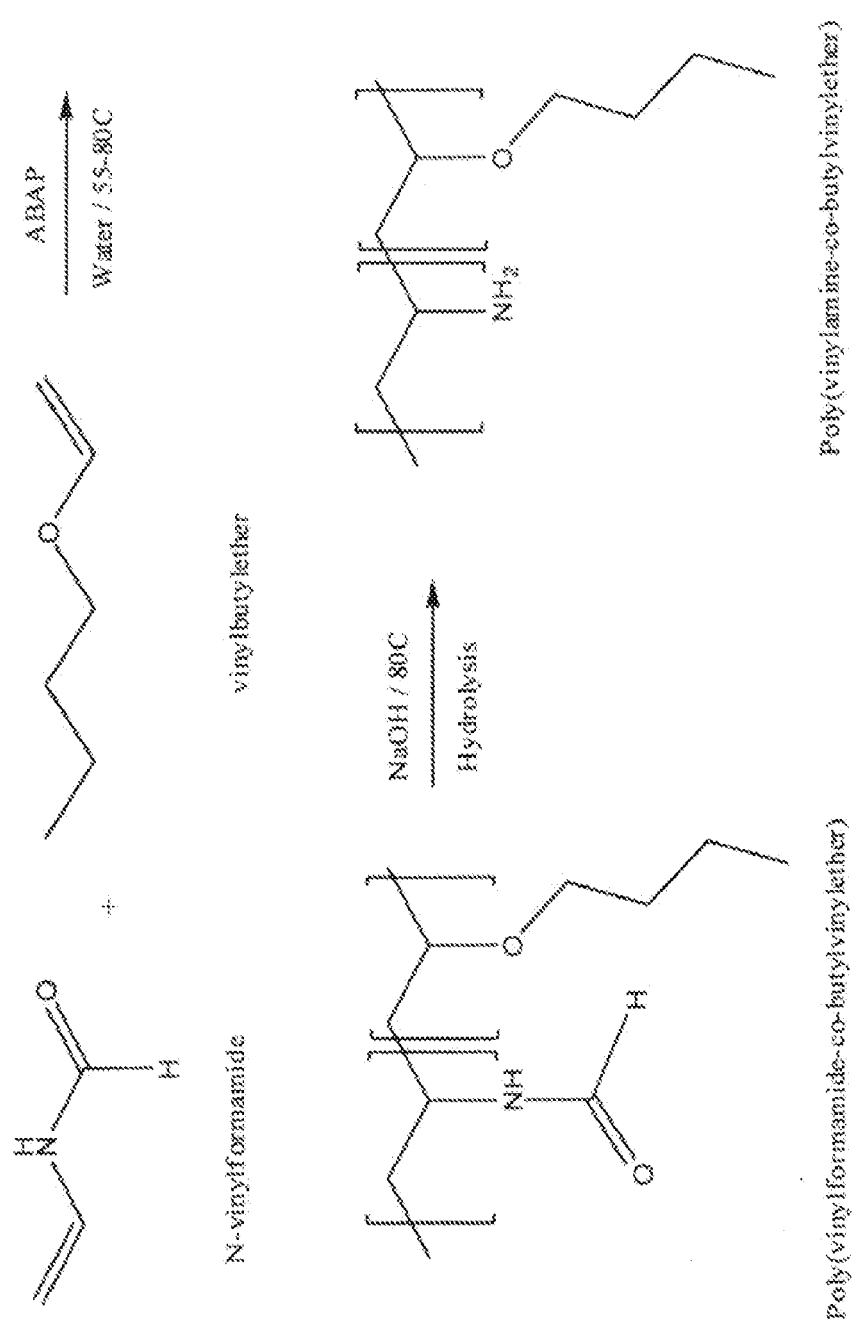


Figure 7. Polymerization and reaction scheme to form multivalent ion stimulus sensitive copolymer.

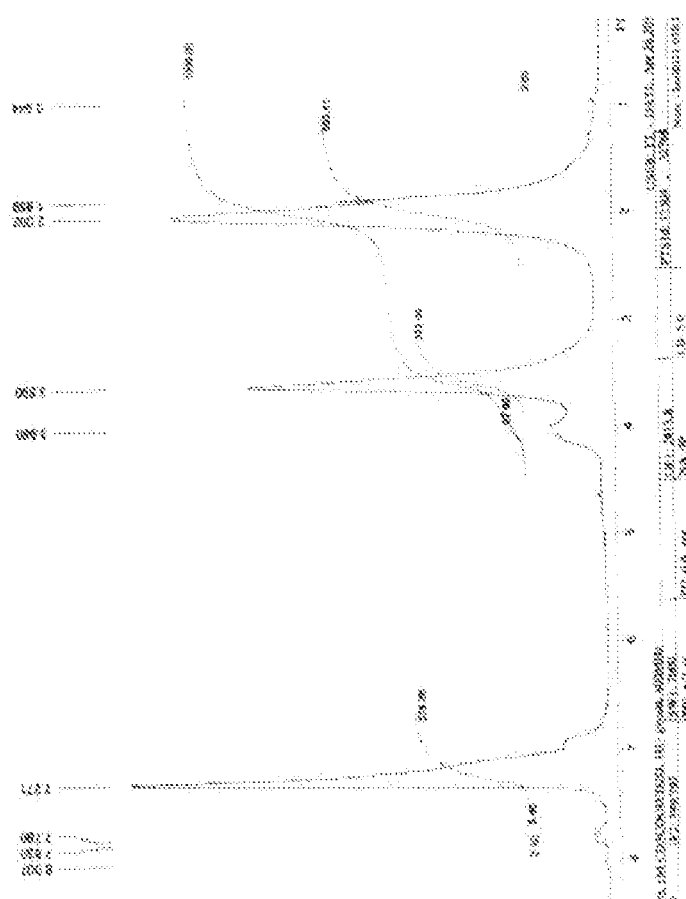


Figure 8 depicts an NMR spectrum for modified polyvinylamine from Example 35. Integration of the ^1H NMR shows benzyl

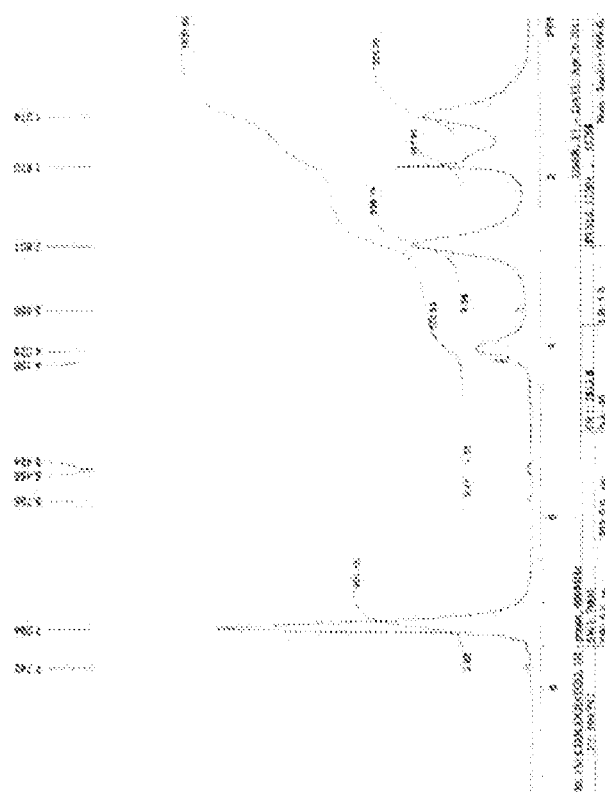


Figure 9 depicts as NMR spectrum for modified polyallylamine from Example 36. Integration of the ^1H NMR shows benzyl modification level of about 33%

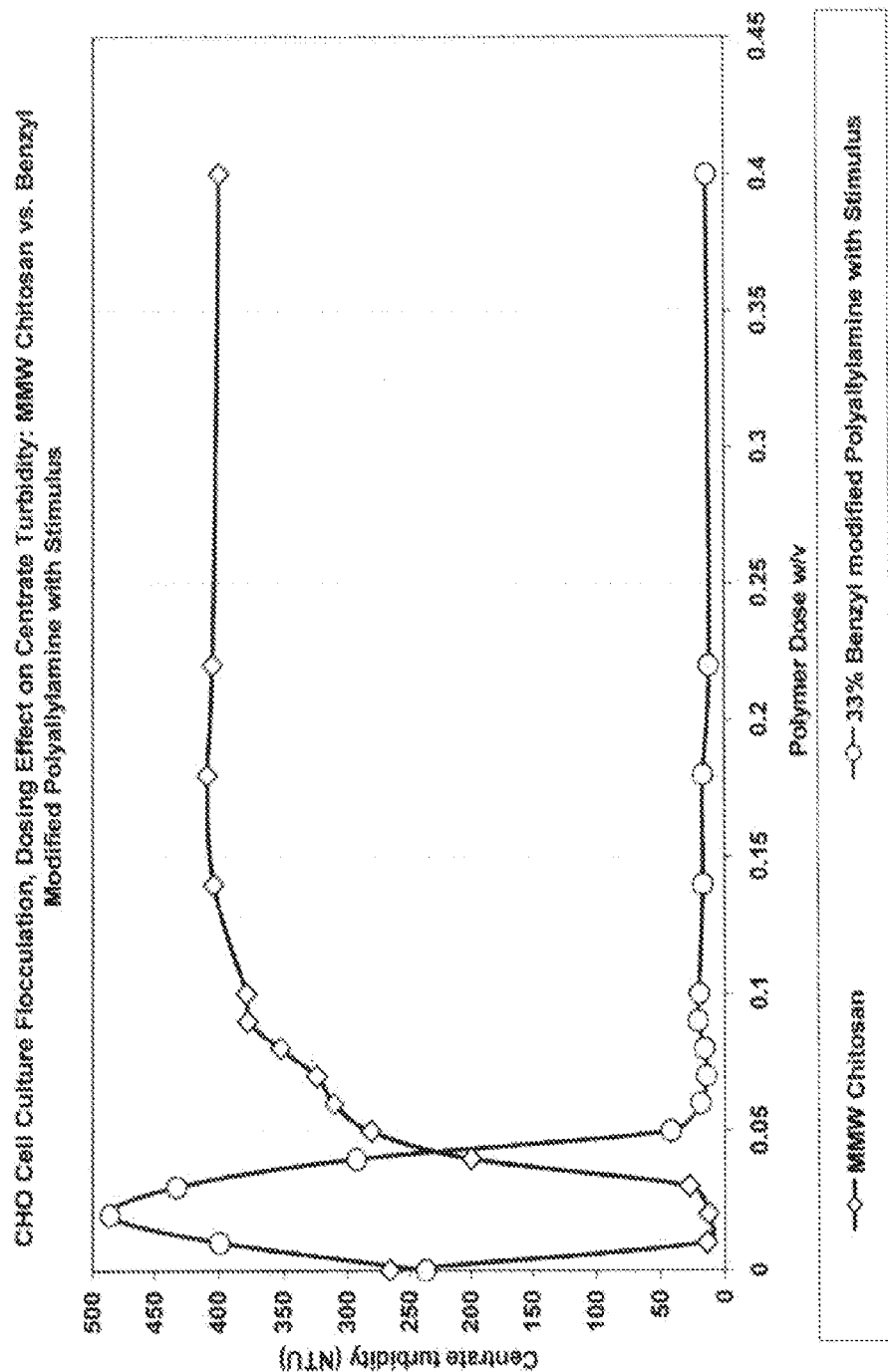


Figure 10. Centrate turbidity vs. polymer dose for experiments described in Example 37.

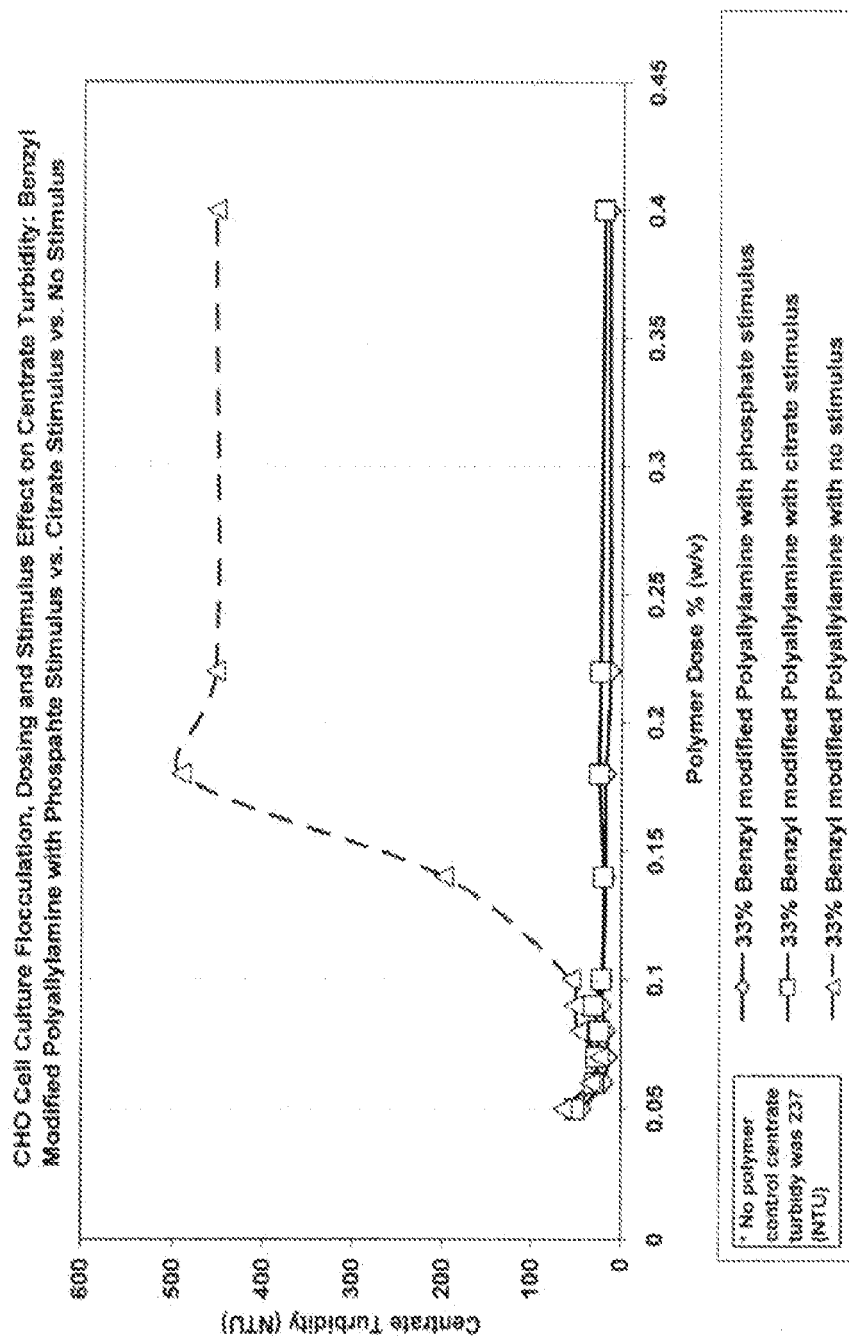


Figure 11. Centrate turbidity vs. polymer dose for experiments described in Example 38.

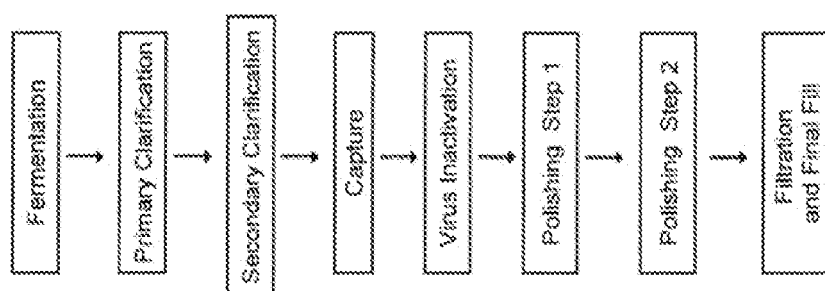


Figure 12. A typical scheme used for the purification of biomolecules.

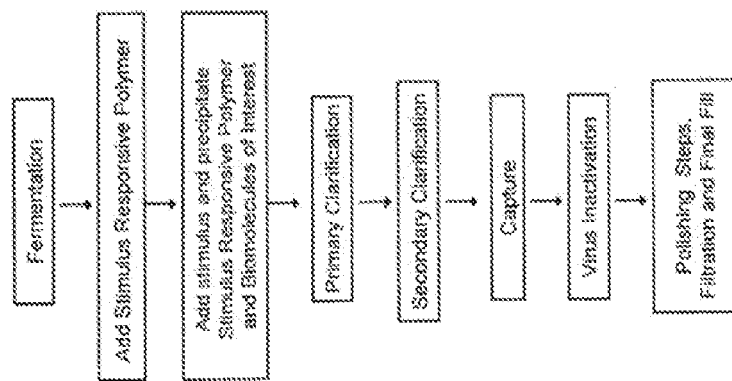


Figure 13. Purification scheme including a stimulus responsive polymer used to improve the clarification of the cell culture. The stimulus responsive polymer removes one or more impurities, however, does not bind the desired target molecule.

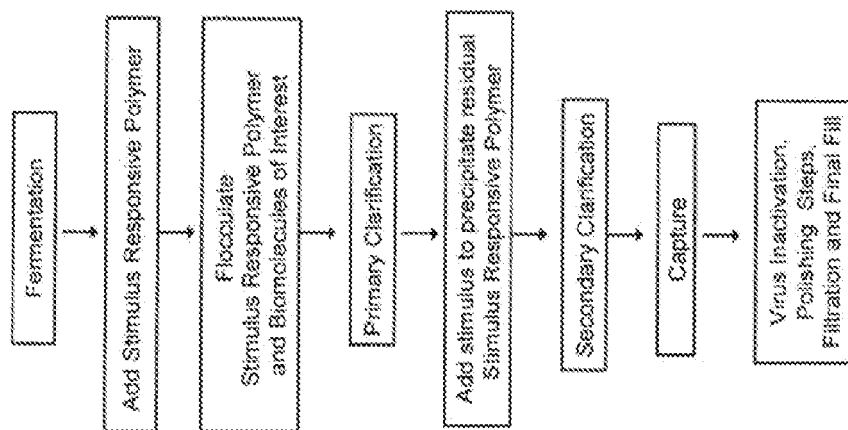


Figure 14. Purification scheme including a stimulus responsive polymer used to improve the clarification of the cell culture. The stimulus responsive polymer removes one or more impurities via flocculation, however, does not bind the desired target molecule and the residual polymer is removed by adding a stimulus after primary clarification.

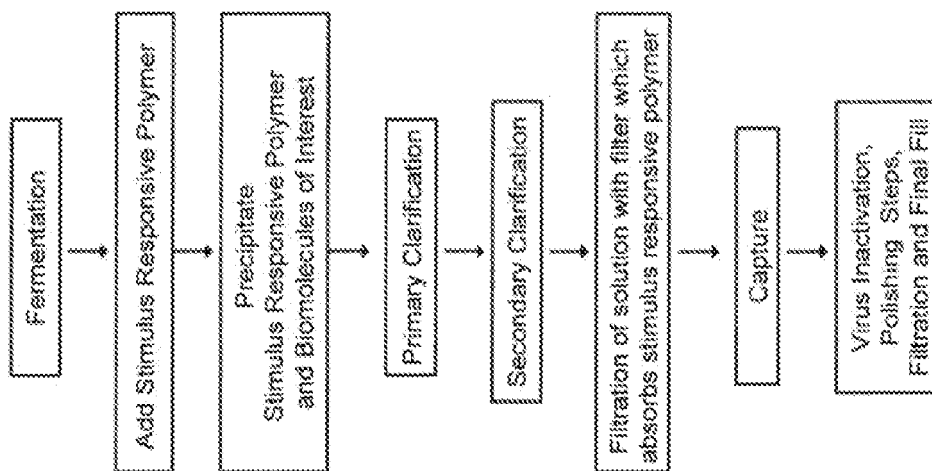


Figure 15. Purification scheme including a stimulus responsive polymer used to improve the clarification of the cell culture. The stimulus responsive polymer removes one or more impurities, but does not bind the target molecule and the residual polymer is removed by an additional adsorptive filtration step after clarification.