STRUCTURE/PROPERTIES OF MACROMOLECULAR ASSEMBLIES BASED ON POLYELECTROLYTE COMPLEXES

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Associating polymers have received considerable attention over the past thirty years due to their very high potential in a wide range of fields such as enhanced oil recovery, cosmetics, paints or biomedical applications like drug release or tissue engineering. Nowadays, the interest is still very strong with the design of macromolecular architectures of increasing complexity based in particular on the development of supramolecular chemistry. When dealing with attractive interactions in aqueous media, different mechanisms come to mind such as hydrophobic interactions or the formation of electrostatic complexes; each of which bringing their own specificity and responsiveness [1]. In this presentation, we will show how hydrophobic and electrostatic interactions can be coupled within macromolecular architectures in order to reversibly control their self-assembly in aqueous media [2-3]. Such behavior is illustrated in **Figure 1**, where the introduction of ionisable groups, either anionic (**A**) or cationic (**C**), into thermoresponsive poly(N-isopropylacrylamide) chains (**PNIPA**) provides a versatile platform to tune the phase separation process and the rheological properties using temperature, pH, and/or ionic strength as environmental triggers [3].

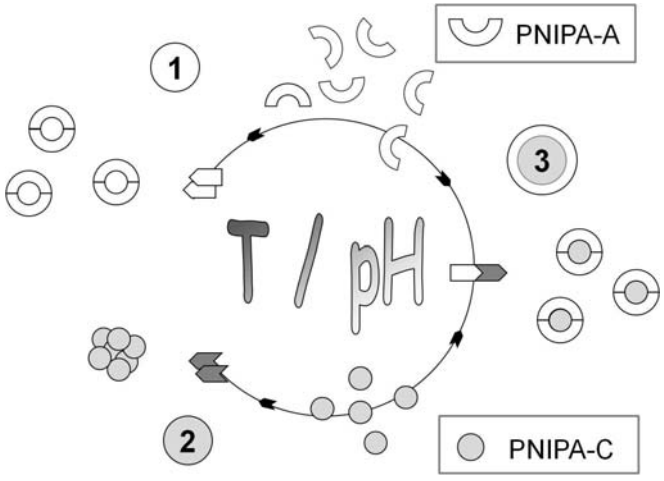

Figure 1. Responsive macromolecular assemblies in aqueous solutions.

References

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