DNA quadruplexes were discovered recently and they are being studied extensively. Find experimental evidence and theoretical justifications for the following specific properties of DNA quadruplexes (2 pages each):

1. Experimental evidence for the quadruplex formation from short, selected sequences.
2. Specific structural criteria and reagents required for the quadruplex formation
3. Quadruplex-random coil transition and its detection by specific experiments
4. Theoretical justification for any one of the above three topics.