Structure and function of the UVDE repair protein

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PROPOSITIONS

1. UVDE is capable of repairing different types of damage, but is specialized in removal of UV lesions (this thesis, chapter 4).

2. Instead of what Kanno *et al*. have reported, UVDE is able to recognize and incise thymine glycol DNA lesions (Kanno *et al*., 1999 and this thesis, chapter 4).

3. Although structurally similar to Endo IV, UVDE interacts differently with DNA, as it makes contact with the undamaged DNA strand whereas Endo IV does not (this thesis, chapter 4).

4. Recognition of DNA damages by UVDE occurs through probing the local bendability of DNA (this thesis, chapter 4).

5. The crystal structure of ADP-bound UvrA does not provide an accurate insight in how UvrA binds DNA, as in this form UvrA has the lowest affinity for DNA (Pakotiprapha *et al.*, 2008 and Seeberg, 1982).

6. Despite the 50-years long period of solving crystal structures, the process of protein crystallization is still largely empirical.

7. The presence of a TIM-barrel fold in both DNA repair proteins and in glycolytic pathway enzymes suggests that they have evolved from a common ancestor.

8. Understanding DNA damage recognition and repair going from bare DNA substrates to chromatin signifies the bottom-up approach in the DNA repair research.

9. Organisms carrying one or multiple UVDE genes should be regarded as evolutionary advanced.

10. The mood of a scientist is proportional to the amount of results obtained in a day.