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The application of X-ray crystallography and site-directed mutagenesis to the study of protein structures

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Stellingen

behorend bij het proefschrift

The application of X-ray crystallography and site-directed mutagenesis to the study of protein structures

1. A single mutation in CD3 γ can determine whether and in which composition the TCR-CD3 complex is expressed on the cell surface of human T cells.
This thesis, chapter 2.
2. If a protein is not knotted, this does not mean it is not knitted.
This thesis, chapter 3.
3. In protein crystallography, having good data does not automatically mean you will find the structure.
This thesis, chapter 4.
4. The crystal structure of recombinant human lactoferrin produced in milk of transgenic livestock is highly similar to the natural human protein, however, this does not make determining the structure less important.
This thesis, chapter 5.
5. The lack of mirror symmetry in natural occurring proteins leads to complacency in learning space group theory amongst macromolecular crystallographers.
International tables for crystallography, vol. A, Space-group theory, Edited by T. Hahn. Third revised edition, 1992.
6. The exact stoichiometry of the T Cell Receptor – CD3 complex is still unknown.
Pan et. al., JBC (2003), 279 (49), 51068-51074; Fernández-Miguel et. al., PNAS (1999), 96, 1547-1552; Thibault et.al., J. Immunology (1995), 154 (8), 3814-20.

7. Crystallography *can* give information on the dynamics of macromolecules.
e.g. Kim et al., Nature Structural Biology (2002), 9, 591-596.
8. Annealing of crystals is something you read about but it never works with your own crystals.
e.g. Ellis et. al., Acta Cryst. (2002), D58, 456-458.
9. An expert is someone who knows some of the worst mistakes which can be made, in a very narrow field.
Niels Bohr (1885 - 1962).
10. De beste stellingen staan bij de bouwmarkt.
11. Niet bij iedere sport is overgewicht een nadeel.
12. Het uitvoeren van onderzoek kan vergeleken worden met autorijden, soms ga je met hoge snelheid maar even later sta je in de file wachtend op enige vooruitgang.

Ellen
April 2005