THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

BIOINFORMATICS INSTITUTE

Role of protein dimerization

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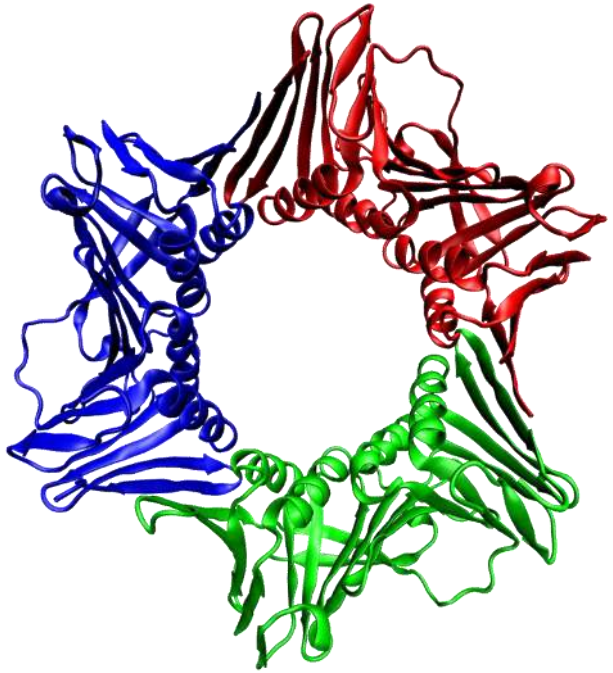
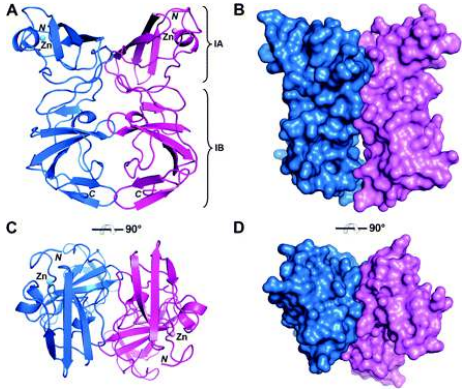
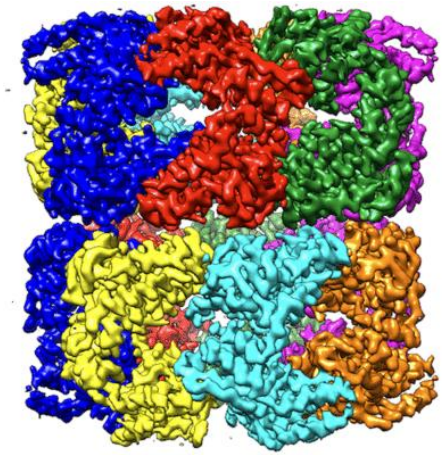
Dimers and oligomers.
Are they overrepresented?



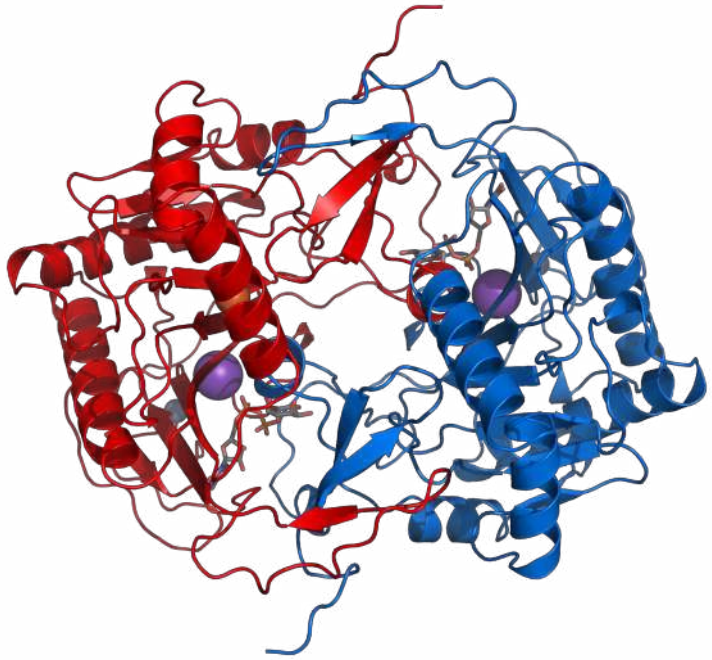
W. Humphrey et al. (1996)



R. Love et al. (2009)



S. Roh et al. (2017)



J. Thoden et al. (1997)

Plan

Тихо-тихо ползи,
Улитка, по склону Фудзи…

The MAIN objective is to understand whether the **oligomeric structure** is **more evolutionary preferable** than monomeric.

General plan of the project is as follows:

1. detect core residues (CR) responsible for structure formation
2. determine how number of CR grows with protein length

analysis of monomeric protein families with **similar structures**

3. compare obtained results with dimeric proteins
4. go further for larger oligomers (n-mers) to find the most preferable n

for CR in subunits interface

Steps:

1. Start to study related literature

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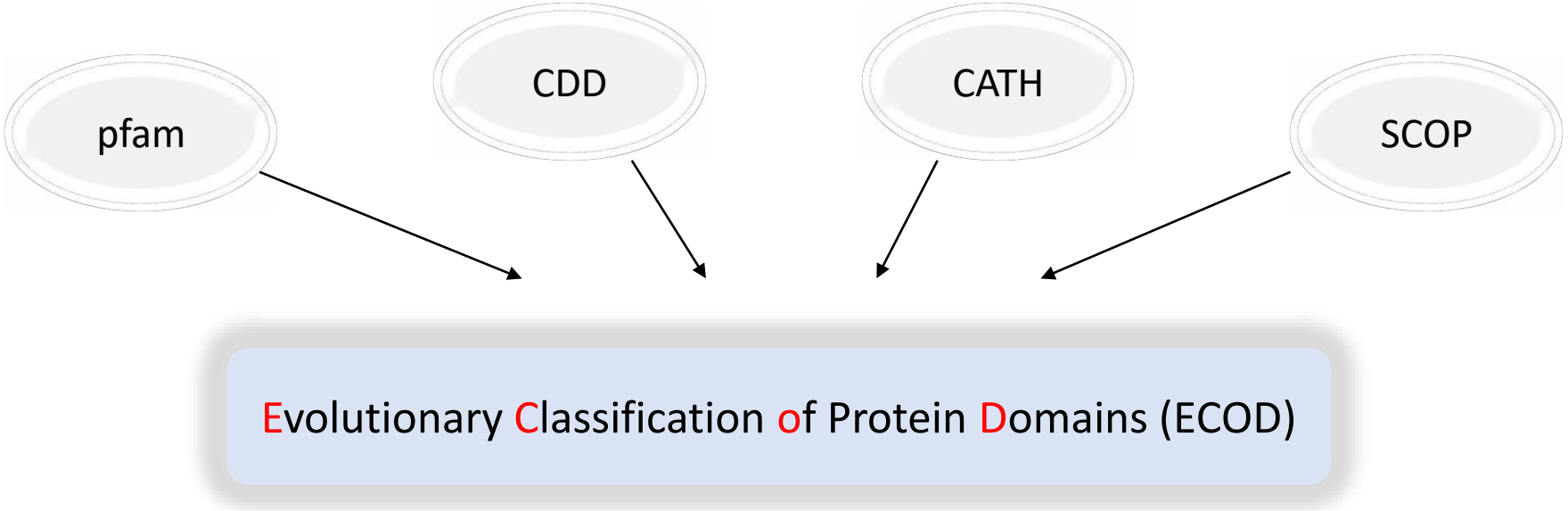

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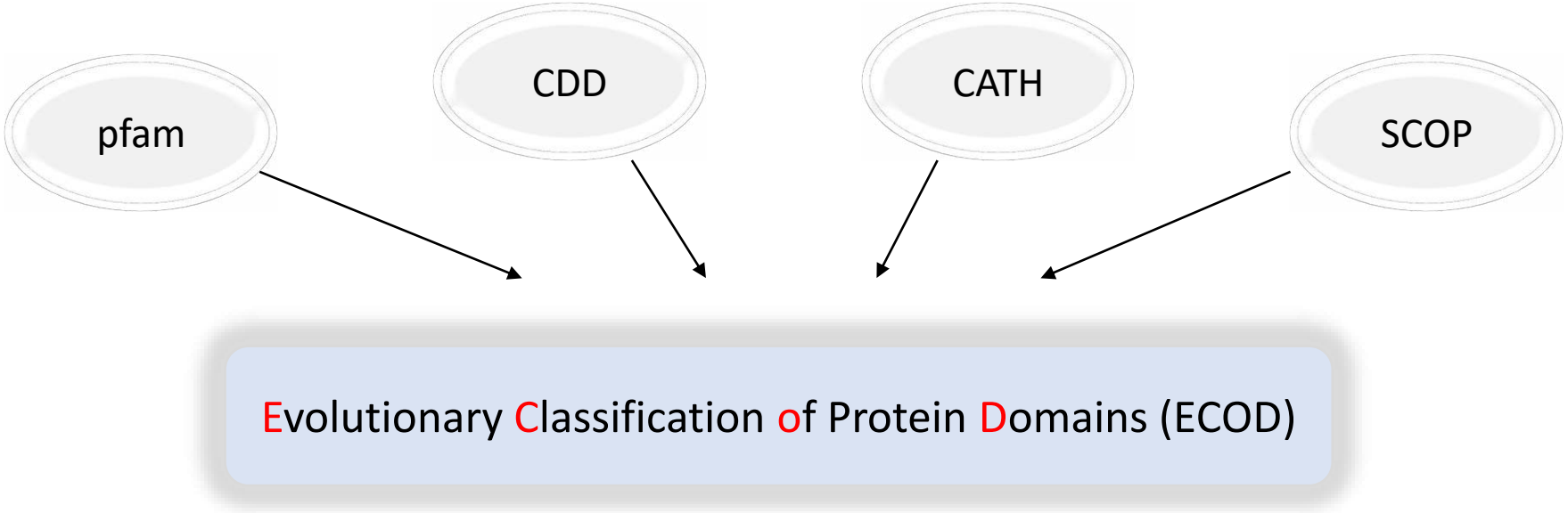

3. Find core residues!

$$S_i = -\sum_{j}^{n_i} P(\sigma_j) \log_2 P(\sigma_j)$$

$P(\sigma_j)$ – probability of σ_j residue on i^{th} position

And then…

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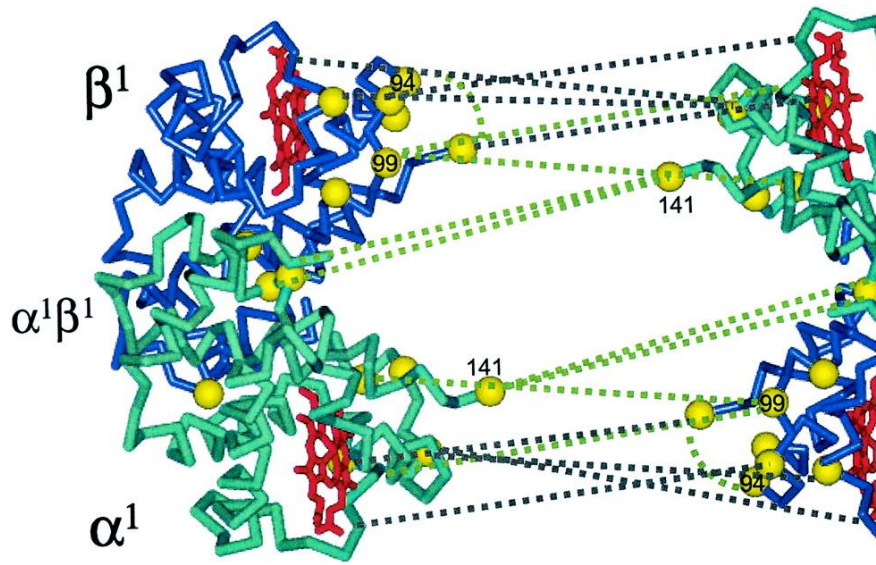
5. Collect information about protein dimers and residues that form their subunits interface



G. Ackers et al. (2002)

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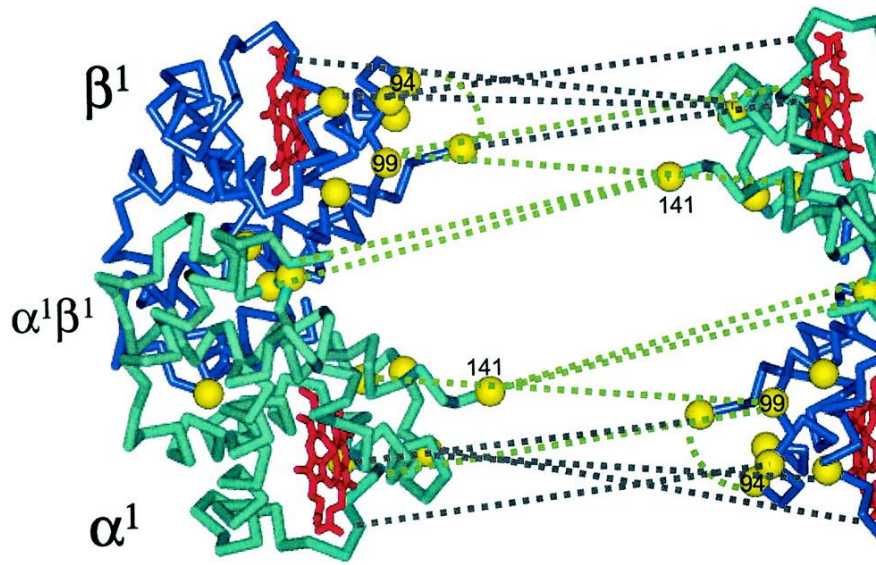

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6. Analyse the data

Thank you for your time!

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Email: orlov239@gmail.com
GitHub: https://github.com/troublov/BI_project_spring18