IBT 432 Aplikasi Bioinformatika

Praktek: Protein Modelling dengan SWISS-MODEL

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Rencana Perkuliahan

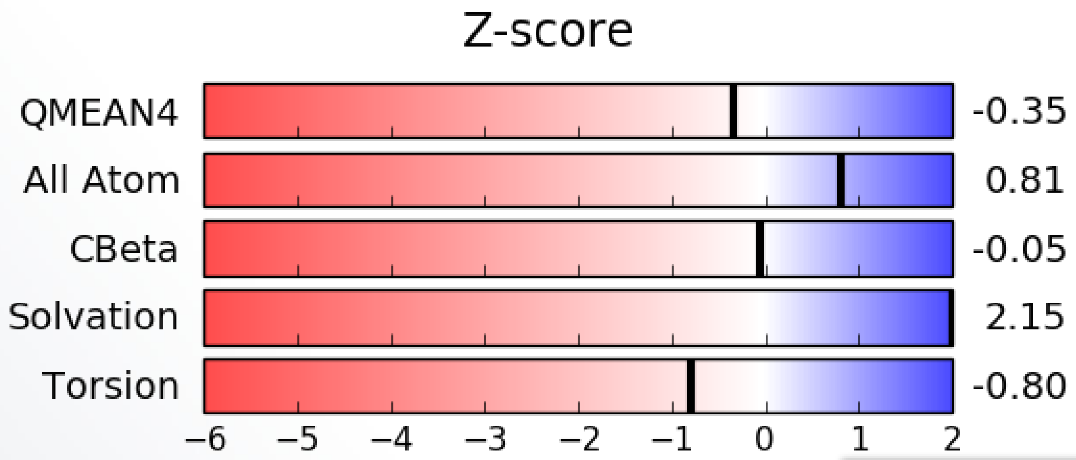
1. ~~Kontrak belajar dan pengenalan bioinformatika aplikatif~~
2. ~~Database sekuen dan analisis genomika~~
3. ~~Anotasi sekuen ke genom - Praktik~~
4. ~~Analisis komparasi genomika I~~
5. ~~Analisis komparasi genomika II~~
6. ~~Analisis komparasi genomika III~~
7. ~~Analisis komparasi genomika – Praktik~~
8. ~~Protein modelling I~~
9. ~~Protein modelling II~~
10. ~~Protein modelling III~~
11. Protein modelling - Praktik
12. Visualisasi protein modelling
13. Visualisasi protein modelling - Praktik
14. Presentasi mahasiswa

SWISS-MODEL automated mode

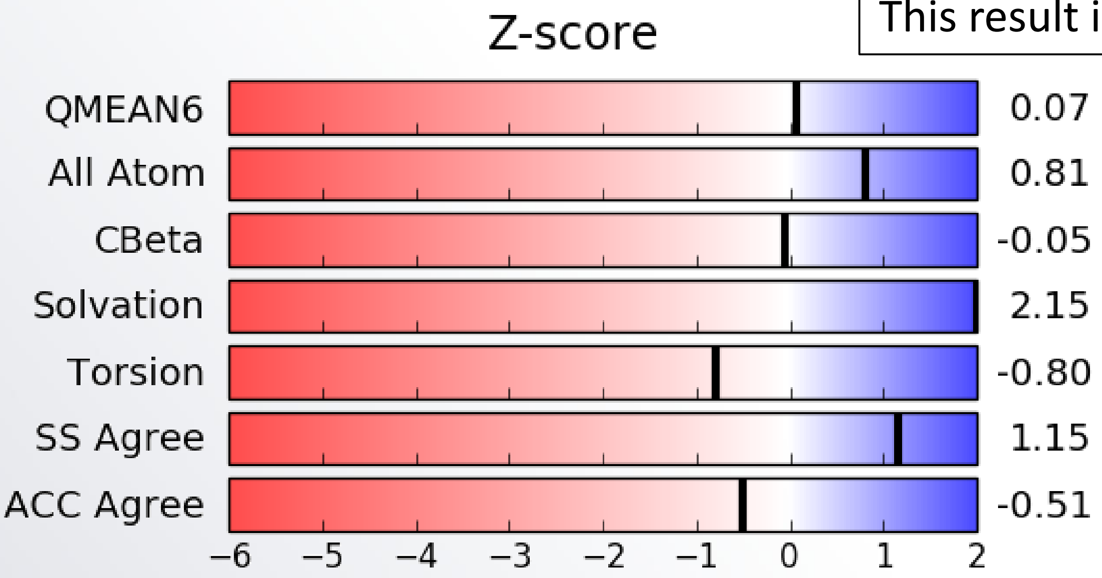
```
>vibranium
MALTEKQEALLKQSWEVLKQNIPAHSLRLFALILEAAPESKYVFSFLKDSNEIPENNPKLK
AHAAVIFKTICESATELRQKGHAVWDNNTLKRLGSIHLKNKITDPHFEVMKGALLGTIKE
AIKENWSDEMGCAWTEAYNQLVATIKAEMKE
```

1. Access https://swissmodel.expasy.org/
2. Make sure you are at “User Template”
3. Paste your query (.FASTA) on the box
4. Click “Search for Templates” to find your templates
5. Chose the best template and then hit “Build Model”
6. Do an assessment on the quality of the model
   - QMEAN
   - GMQE
   - Local Quality Estimate
   - Comparison
7. Save the .pdb file of the automated model
8. Rename if necessary

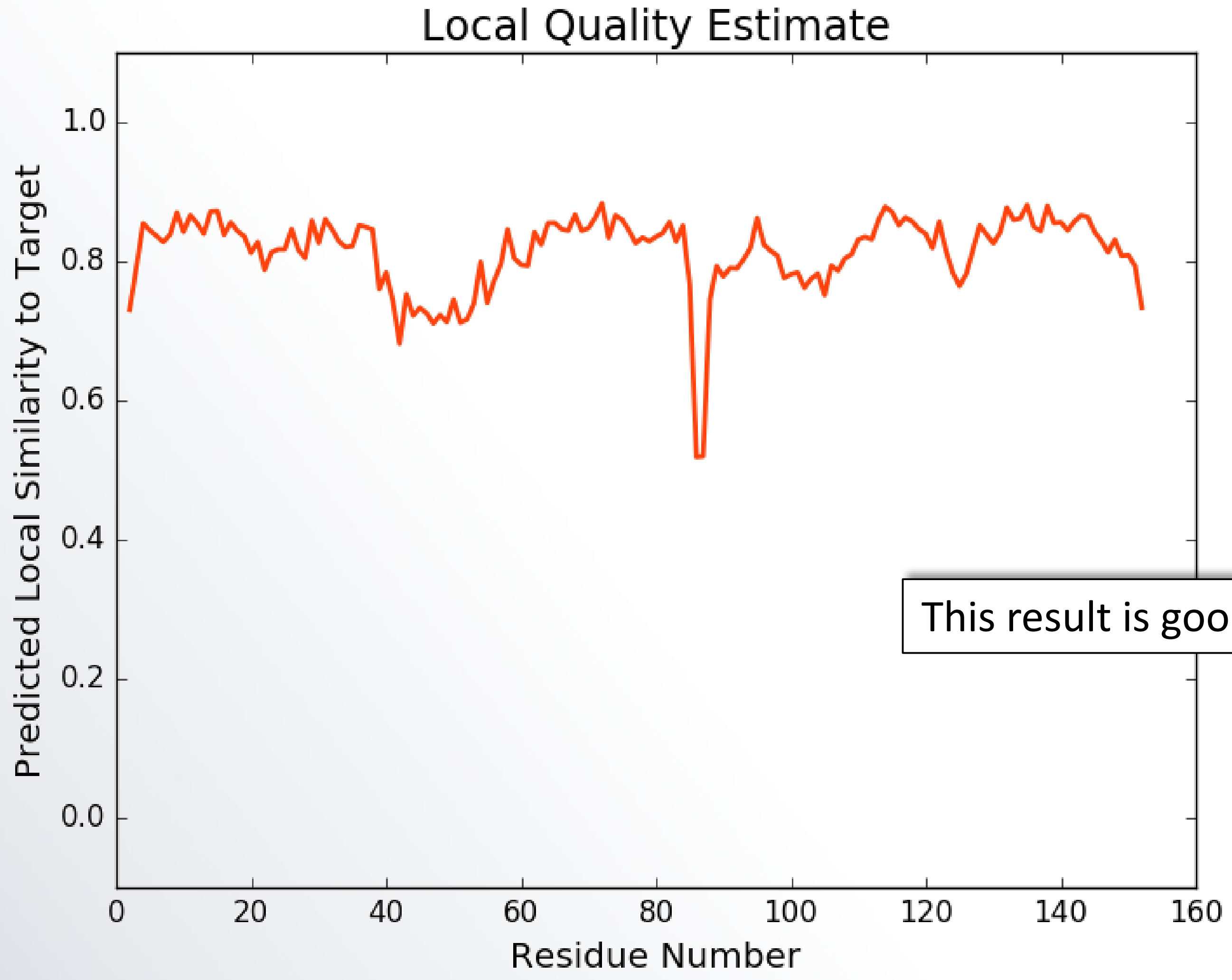
SWISS-MODEL automated mode



This result is good or bad?

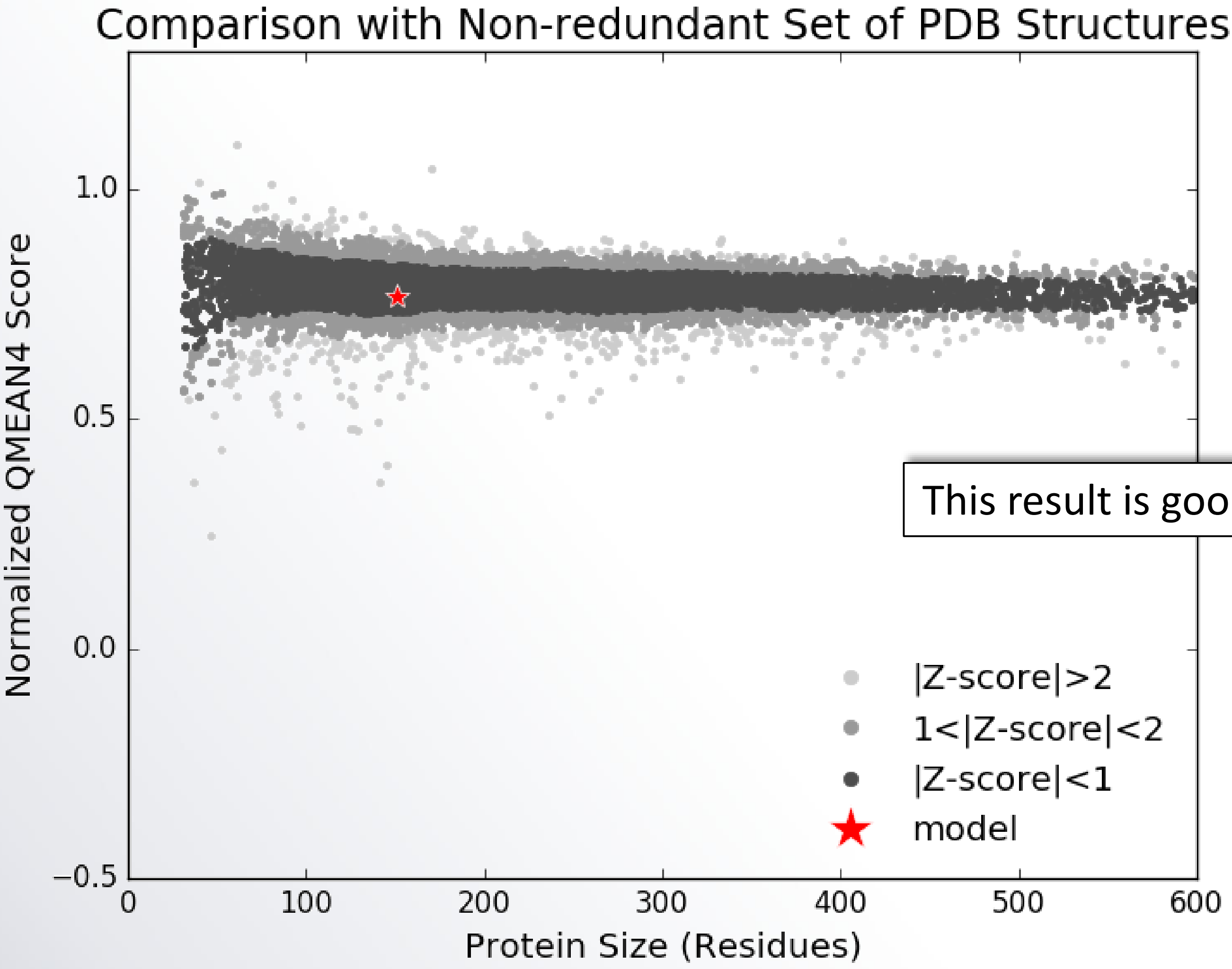


SWISS-MODEL automated mode



This result is good or bad?

SWISS-MODEL automated mode



This result is good or bad?

TUGAS

```
>whatisthis
MASQCPVKNSWPELVGTNGDIAAGIIQTENANVKAIVVKEGLPITQDLNFNRVRVFVD
ENRVVTQVPAIG
```

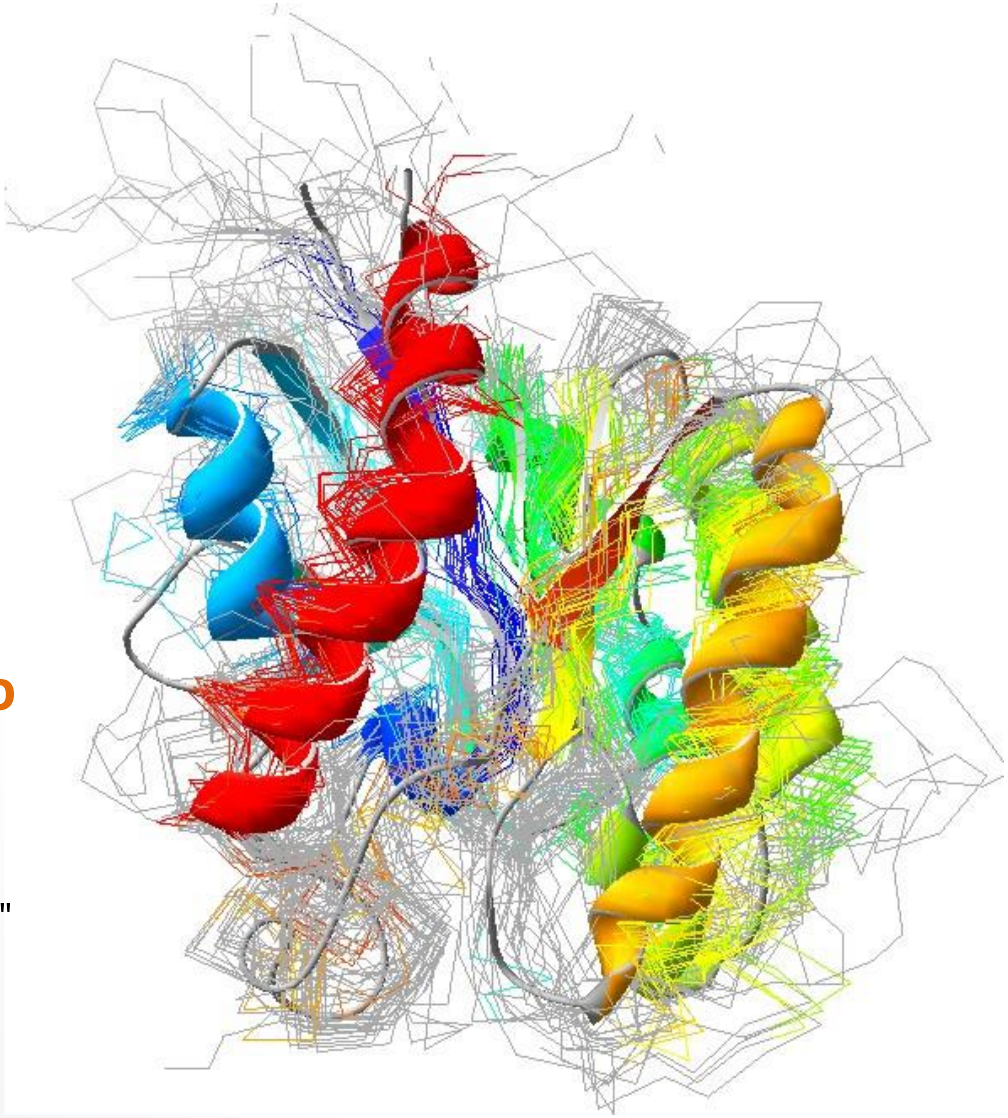
1. Do a automated modelling on this “whatisthis” residues
2. Do an assessment on the quality of the model
    - QMEAN
    - GMQE
    - Local Quality Estimate
    - Comparison
7. Save the Single Page Project Report
8. Save the .pdb file of the automated model
9. Rename if necessary

Paradox: modeling is not a real protein

Ceci n'est pas une protéine.

"... a model must be **wrong**, in some respects --- else it would be the thing itself. The trick is **to see** ... **where it is right**."

Henry A. Bent
"Uses (and Abuses) of Models in Teaching Chemistry," J. Chem. Ed. 1984 61, 774.



It was still the eleventh course, don’t get dizzy yet