

Usage.

`./FuzDrop protein_name.fasta protein_name.espritz`

FuzDrop is available for both MacOSX and Linux.

Requirements.

1/ Sequence in fasta format.

- header is required
- only standard amino acids, no posttranslational modifications or gaps.

2/ Espritz disorder prediction file.

- extension .espritz
- same name as the .fasta (protein_name.fasta)

Note. Espritz is a standalone program, which can be downloaded from <https://protein.bio.unipd.it/downloads>, specifying the program “Espritz”.

Please run Espritz for the set of sequences before running FuzDrop. You need Espritz NMR version, the fasta file must be present in the examples_fastas folder, where your espritz program is.

Usage: perl espritz.pl your_protein.fasta N 1

FuzDrop Output.

The output file is automatically generated with extension _res.txt

Example

| Pos | Res | pDD | MBM | pDP |
|-----|-----|--------|--------|--------|
| 1 | M | 0.6387 | 0.4127 | 0.7877 |
| 2 | S | 0.6438 | 0.5903 | 0.7838 |
| 3 | E | 0.6387 | 0.6088 | 0.8029 |
| 4 | Y | 0.6438 | 0.6594 | 0.7731 |
| 5 | I | 0.6814 | 0.6539 | 0.7721 |

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Liquid-liquid phase separation propensity p(LLPS) = 0.8981

Columns:

Pos: residue number in sequence

Res: amino acid type

pDD: propensity of disordered binding (from FuzPred)

MBM: multiplicity of binding modes

pDP: Droplet-promoting propensity per residue

Last line:

p(LLPS): probability of spontaneous liquid-liquid phase separation of the protein