



The Significant and Profound Impacts of Protein Subcellular Localization Prediction (Short Communication)

Kuo-Chen Chou*

Gordon Life Science Institute, Boston, Massachusetts, United States of America

*Corresponding Author: Kuo-Chen Chou, Gordon Life Science Institute, Boston, Massachusetts, United States of America.

Received: October 03, 2020

Published: November 07, 2020

© All rights are reserved by **Kuo-Chen Chou**.

The first paper introducing the protein subcellular location prediction was in 2005 [1]. It has stimulated a series of followed-up publications [2-10], particularly for those proteins with multiple location sites [11-18], as well as the eight master pieces of papers from the then Chairman of Nobel Prize Committee Sture Forsen [19-26].

It is indeed very significant by introducing the intriguing approach to deal with those proteins with multiple location sites, and it is indeed very profound and stimulating in this regard (see, e.g. [27-46]).

Bibliography

1. HB Shen and KC Chou. "Predicting protein subnuclear location with optimized evidence-theoretic K-nearest classifier and pseudo amino acid composition". *Biochemical and Biophysical Research Communications* 337 (2005): 752-756.
2. KC Chou and HB Shen. "Predicting protein subcellular location by fusing multiple classifiers". *Journal of Cellular Biochemistry* 99 (2006): 517-527.
3. KC Chou and HB Shen. "Predicting eukaryotic protein subcellular location by fusing optimized evidence-theoretic K-nearest neighbor classifiers". *Journal of Proteome Research* 5 (2006): 1888-1897.
4. KC Chou and HB Shen. "Large-scale predictions of Gram-negative bacterial protein subcellular locations". *Journal of Proteome Research* 5 (2006): 3420-3428.
5. KC Chou and HB Shen. "Large-scale plant protein subcellular location prediction". *Journal of Cellular Biochemistry* 100 (2007): 665-678.
6. KC Chou and HB Shen. "Euk-mPLOC: a fusion classifier for large-scale eukaryotic protein subcellular location prediction by incorporating multiple sites". *Journal of Proteome Research* 6 (2007): 1728-1734.
7. KC Chou and HB Shen. "Recent progresses in protein subcellular location prediction". *Annals of Biochemistry* 370 (2007): 1-16.
8. HB Shen and KC Chou. "Hum-mPLOC: An ensemble classifier for large-scale human protein subcellular location prediction by incorporating samples with multiple sites". *Biochemical and Biophysical Research Communications* 355 (2007): 1006-1011.
9. HB Shen., et al. "Euk-PLOC: an ensemble classifier for large-scale eukaryotic protein subcellular location prediction". *Amino Acids* 33 (2007): 57-67.
10. HB Shen and KC Chou. "Virus-mPLOC: A Fusion Classifier for Viral Protein Subcellular Location Prediction by Incorporating Multiple Sites". *Journal of Biomolecular Structure and Dynamics* 28 (2010): 175-186.
11. HB Shen., et al. "Using supervised fuzzy clustering to predict protein structural classes". *Biochemical and Biophysical Research Communications* 334 (2005): 577-581.
12. KC Chou and HB Shen. "Hum-PLOC: A novel ensemble classifier for predicting human protein subcellular localization". *Biochemical and Biophysical Research Communications* 347 (2006): 150-157.
13. KC Chou and HB Shen. "Addendum to "Hum-PLOC: A novel ensemble classifier for predicting human protein subcellular localization". *Biochemical and Biophysical Research Communications* 348 (2006): 1479.

14. KC Chou and HB Shen. "Signal-CF: a subsite-coupled and window-fusing approach for predicting signal peptides". *Biochemical and Biophysical Research Communications* 357 (2007): 633-640.
15. KC Chou and HB Shen. "MemType-2L: A Web server for predicting membrane proteins and their types by incorporating evolution information through Pse-PSSM". *Biochemical and Biophysical Research Communications* 360 (2007): 339-345.
16. HB Shen and KC Chou. "Signal-3L: a 3-layer approach for predicting signal peptide". *Biochemical and Biophysical Research Communications* 363 (2007): 297-303.
17. HB Shen and KC Chou. "EzyPred: A top-down approach for predicting enzyme functional classes and subclasses". *Biochemical and Biophysical Research Communications* 364 (2007): 53-59.
18. KC Chou and HB Shen. "ProtIdent: A web server for identifying proteases and their types by fusing functional domain and sequential evolution information". *Biochemical and Biophysical Research Communications* 376 (2008): 321-325.
19. KC Chou and S Forsen. "Diffusion-controlled effects in reversible enzymatic fast reaction system: Critical spherical shell and proximity rate constants". *Biophysical Chemistry* 12 (1980): 255-263.
20. KC Chou and S Forsen. "Graphical rules for enzyme-catalyzed rate laws". *Biochemical Journal* 187 (1980): 829-835.
21. KC Chou., *et al.* "Three schematic rules for deriving apparent rate constants". *Chemica Scripta* 16 (1980): 109-113.
22. KC Chou., *et al.* "The critical spherical shell in enzymatic fast reaction systems". *Biophysical Chemistry* 12 (1980): 265-269.
23. TT Li., *et al.* "The flow of substrate molecules in fast enzyme-catalyzed reaction systems". *Chemica Scripta* 16 (1980): 192-196.
24. KC Chou., *et al.* "A new graphical method for deriving rate equations for complicated mechanisms". *Chemica Scripta* 18 (1981): 82-86.
25. KC Chou., *et al.* "The biological functions of low-frequency phonons: 2. Cooperative effects". *Chemica Scripta* 18 (1981): 126-132.
26. KC Chou and S Forsen. "Graphical rules of steady-state reaction systems". *Canadian Journal of Chemistry* 59 (1981): 737-755.
27. JZ Cao., *et al.* "Predicting Viral Protein Subcellular Localization with Chou's Pseudo Amino Acid Composition and Imbalance-Weighted Multi-Label K-Nearest Neighbor Algorithm". *Protein and Peptide Letters* 19 (2012): 1163-1169.
28. LQ Li., *et al.* "Prediction of Protein Subcellular Multi-Localization Based on the General form of Chou's Pseudo Amino Acid Composition". *Protein and Peptide Letters* 19 (2012): 375-387.
29. S Mei. "Multi-kernel transfer learning based on Chou's PseAAC formulation for protein submitochondria localization". *Journal of Theoretical Biology* 293 (2012): 121-130.
30. S Mei. "Predicting plant protein subcellular multi-localization by Chou's PseAAC formulation based multi-label homolog knowledge transfer learning". *Journal of Theoretical Biology* 310 (2012): 80-87.
31. Zia-ur-Rehman and A Khan. "Identifying GPCRs and their Types with Chou's Pseudo Amino Acid Composition: An Approach from Multi-scale Energy Representation and Position Specific Scoring Matrix". *Protein and Peptide Letters* 19 (2012): 890-903.
32. C Huang and J Yuan. "Using radial basis function on the general form of Chou's pseudo amino acid composition and PSSM to predict subcellular locations of proteins with both single and multiple sites". *Biosystems* 113 (2013): 50-57.
33. C Huang and JQ Yuan. "A multilabel model based on Chou's pseudo amino acid composition for identifying membrane proteins with both single and multiple functional types". *The Journal of Membrane Biology* 246 (2013): 327-334.
34. C Huang and JQ Yuan. "Predicting protein subchloroplast locations with both single and multiple sites via three different modes of Chou's pseudo amino acid compositions". *Journal of Theoretical Biology* 335 (2013): 205-212.
35. E Pacharawongsakda and T Theeramunkong. "Predict Subcellular Locations of Singleplex and Multiplex Proteins by Semi-Supervised Learning and Dimension-Reducing General Mode of Chou's PseAAC". *IEEE Transactions on Nanobioscience* 12 (2013): 311-320.
36. X Wang., *et al.* "Virus-ECC-mPLOC: a multi-label predictor for predicting the subcellular localization of virus proteins with both single and multiple sites based on a general form of Chou's pseudo amino acid composition". *Protein and Peptide Letters* 20 (2013): 309-317.
37. M Mandal., *et al.* "Prediction of protein subcellular localization by incorporating multiobjective PSO-based feature subset selection into the general form of Chou's PseAAC". *Medical and Biological Engineering and Computing* 53 (2015): 331-344.
38. X Wang., *et al.* "MultiP-SChlo: multi-label protein subchloroplast localization prediction with Chou's pseudo amino acid composition and a novel multi-label classifier". *Bioinformatics* 31 (2015): 2639-2645.

39. HL Zou and X Xiao. "Predicting the Functional Types of Single-plex and Multiplex Eukaryotic Membrane Proteins via Different Models of Chou's Pseudo Amino Acid Compositions". *The Journal of Membrane Biology* 249 (2016): 23-29.
40. HL Zou and X Xiao. "Classifying Multifunctional Enzymes by Incorporating Three Different Models into Chou's General Pseudo Amino Acid Composition". *The Journal of Membrane Biology* 249 (2016): 561-567.
41. WR Qiu., *et al.* "Multi-iPPseEvo: A Multi-label Classifier for Identifying Human Phosphorylated Proteins by Incorporating Evolutionary Information into Chou's General PseAAC via Grey System Theory". *Molecular Informatics* 36 (2017):: UNSP 1600085.
42. J Ahmad., *et al.* "MFSC: Multi-voting based Feature Selection for Classification of Golgi Proteins by Adopting the General form of Chou's PseAAC components". *Journal of Theoretical Biology* 463 (2018): 99-109.
43. F Javed and M Hayat. "Predicting subcellular localizations of multi-label proteins by incorporating the sequence features into Chou's PseAAC". *Genomics* 17 (2018): 793-821.
44. J Ahmad and M Hayat. "MFSC: Multi-voting based feature selection for classification of Golgi proteins by adopting the general form of Chou's PseAAC components". *Journal of Theoretical Biology* 463 (2019): 99-109.
45. X Du., *et al.* "MsDBP: Exploring DNA-binding Proteins by Integrating Multi-scale Sequence Information via Chou's 5-steps Rule". *Journal of Proteome Research* 18 (2019): 3119-3132.
46. L Du., *et al.* "Using Evolutionary Information and Multi-Label Linear Discriminant Analysis to Predict the Subcellular Location of Multi-Site Bacterial Proteins via Chou's 5-Steps Rule". *IEEE Access* 8 (2020): 56452-56461.

Assets from publication with us

- Prompt Acknowledgement after receiving the article
- Thorough Double blinded peer review
- Rapid Publication
- Issue of Publication Certificate
- High visibility of your Published work

Website: www.actascientific.com/

Submit Article: www.actascientific.com/submission.php

Email us: editor@actascientific.com

Contact us: +91 9182824667