

UMBER - University of Manchester Bioinformatics Education & Research

EMBnet specialist node: progress report



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Introduction

As a Specialist Node, UMBER receives neither finance nor a mandate from government to serve a national community. Instead, working in an academic institution, our role is to perform research and teaching, the fruits of which labours we offer freely on the Web. Page restrictions forbid a full account of our work in the last 3 years, but here we give a flavour of some of our activities.

European Projects

We have participated in a number of European projects: e.g., we've contributed to several workpackages within EMBRACE (European Model for Bioinformatics Research and Community Education), where our principal outputs have been further development of Utopia (utopia.cs.man.ac.uk) and creation of the Web Service Registry (www.embraceregistry.net); within IMPACT (which maintains and enhances InterPro), we continue to support the development of the PRINTS protein fingerprint database, and are currently providing guidance on protein family classification; in the context of EuroKUP (European Network for Kidney and Urine Proteomics), we coordinate Working Group 4 (with Erik Bongcam-Rudloff) and liaise with eLICO (the e-Laboratory for Interdisciplinary Collaborative Research in Data Mining and Data-Intensive Science).



Figure 1. Interior of the Michael Smith Building, where UMBER is located.

Tools & Resources

We've added a range of new software tools to the DbBrowser Web server (www.bioinf.manchester.ac.uk/dbbrowser), primarily for protein sequence analysis and database annotation: the most prominent of these are MINOTAUR

(www.bioinf.manchester.ac.uk/dbbrowser/minotaur/about.html) and Utopia (as mentioned above). We also continue to maintain, and contribute towards the development of, key bioinformatics databases, such as InterPro, PRINTS (www.bioinf.manchester.ac.uk/dbbrowser/PRINTS) and the Central Aspergillus Data REpository, CADRE (www.cadre-genomes.org.uk).

Affiliations with Societies and Journals

Much of our work concerns database maintenance and annotation, so I was pleased to see the formation of the new International Society for

Biocuration (ISB, www.biocurator.org). I was recently elected to the ISB's Executive Board, and I hope that EMBnet may have a productive relationship with this highly relevant Society. We have also formed a fruitful relationship with Portland Press, publishers of the *Biochemical Journal*. In a joint project, we have created Utopia Documents (getutopia.com/products/documents), which is underpinning a new venture in 'semantic' scholarly publishing. Again, I hope to extend this relationship to other publishers and journals, and especially to EMBnet.news.

Selected publications

Peer-reviewed journals

1. Attwood TK, zKell DB, McDermott P et al. (2009) Calling International Rescue – knowledge lost in literature and data landslide! *Biochem J* 242: 317-333.
2. Pettifer S, Thorne D, McDermott P, Marsh J, Villegier A, Kell DB, Attwood TK (2009) Visualising biological data: a semantic approach to tool and database integration. *BMC Bioinformatics* 10: S18.
3. Pettifer S, Thorne D, McDermott P, Attwood T et al. (2009) An active registry for bioinformatics Web services. *Bioinformatics* 25: 2090-2091.
4. Hunter S, Apweiler R, Attwood TK, Bairoch A et al. (2009) InterPro: the integrative protein signature database. *Nucleic Acids Res* 37: D211-D215.
5. Mabey Gilsean J, Atherton G, Bartholomew J, Giles PF, Attwood TK et al. (2009) *Aspergillus* Genomes and The *Aspergillus* Cloud. *Nucleic Acids Res* 37: D509-D514.
6. Stockinger H, Attwood TK, Chohan SN, Cote R et al. (2008) Experience using Web services for biological sequence analysis. *Brief Bioinform* 9: 493-505.
7. Vlahou A, Schanstra J, Frokiaer J, El Nahas M, Spasovski G, Mischak H, Domon B, Allmaier G, Bongham-Rudloff E, Attwood TK (2008) Establishment of a European Network for Urine and Kidney Proteomics. *J Proteomics* 71: 490-2.
8. Nordle AK, Rios P, Gaulton A, Pulido R, Attwood TK, Tabernero L (2007) Functional assignment of MAPK phosphatase domains. *Proteins* 69: 19-31.
9. Kim J-H, Mitchell AL, Attwood TK, Hilario M (2007) Learning to extract relations for protein annotation. *Bioinformatics* 23: i256-i263.
10. Roma-Mateo C, Rios P, Tabernero L, Attwood TK, Pulido R (2007) A novel phosphatase family, structurally related to dual-specificity phosphatases, that displays unique amino acid sequence and substrate specificity. *J Mol Biol* 374: 899-909.



Figure 2. Exterior of the modern Michael Smith Building.

Newsletters & Magazines

1. Attwood TK, Kell DB, McDermott P, Marsh J, Pettifer SR, Thorne D (2009) Knowledge lost in literature and data landslide: Calling International Rescue! The *Biochemist*, December 2009, pp.23-38.
2. Pettifer S, Attwood TK, McDermott P et al. (2007) UTOPIA: User-friendly Tools for Operating Informatics Applications. *EMBnet.news* 13: 19-24.

Books & book chapters

10. Higgs P, Attwood TK (2008) *Bioinformatyka i ewolucja molekularna (Bioinformatics and Molecular Evolution)*. Murzyn K, Liguzinski P, Kurdziel M Warsaw translators. Wydawnictwo Naukowe PWN.
11. Attwood TK, Parry-Smith DJ, Phukan S (2007) *Introduction to bioinformatics*. India: Dorling Kindersley.
12. Attwood TK (2007) Genetic databases. In: *Encyclopaedia of the Human Genome*. London: Nature Publishing Group.
13. Cammack R, Attwood TK, Campbell PN, Parish JH, Smith AD, Stirling JL, Vella F editors. (2006) *Oxford Dictionary of Biochemistry and Molecular Biology, Second Edition*. Oxford: Oxford University Press.
14. Attwood TK, Mitchell A, Gaulton A, Moulton G, Tabernero L (2006) The PRINTS protein fingerprint database: functional and evolutionary applications. In: Jorde L, Little P, Dunn M, Subramaniam S editors. *Encyclopaedia of Genetics, Genomics, Proteomics and Bioinformatics*. New Jersey: John Wiley & Sons.