The Phylogeny of the MHPs and beyond

Dr Mary J. O’Connell
Bioinformatics and Molecular Evolution Group, Dublin City University, Glasnevin,
Dublin 9, Ireland.
mary.oconnell@dcu.ie

Noeleen Loughran, Brendan O’Connor, Ciaran O’Fagain
What are the MHPs?

- Mammalian heme peroxidases: *Myeloperoxidase, eosinophil peroxidase, lactoperoxidase and thyroid peroxidase.*
- *Asthma, Alzheimer’s disease and inflammatory vascular disease.*
- *Diverse functions*
Evidence for LBA
Resolved phylogeny for MHPs

(a) MPO

(b) EPO

LPO

TPO

0.1 substitutions/site
Evolution of specificities e.g. MPO
Conclusion

- Resolved relationship between these enzymes.
- Pinpointed the amino acid residues responsible for functional shift
- Currently testing these amino acid positions in vitro for functional effect.