

Chemical Biology and Chemogenomics in Drug Discovery

Hugo Kubinyi, Weisenheim am Sand, Germany. kubinyi@t-online.de

Chemical biology and chemogenomics are recent strategies in the systematic search for new lead structures. Chemical biology studies the influence of chemical libraries on biological systems, e.g. stem cells, yeast and other cellular systems, parasites, or small animals, like *Caenorhabditis elegans*, *Drosophila* or the zebrafish, *Danio rerio*. If a new phenotype is discovered by the action of a certain substance, the next step is the identification of the respective target.

In chemogenomics, libraries of congeneric compounds are screened against families of evolutionary related targets, i.e. certain GPCR classes, nuclear receptors, integrins, proteases, kinases, and transporters. Know-how from lead optimization at one target can be transferred to another target; in addition, several analogs of non-specific compounds may show significantly different selectivities. Typical chemical biology and chemogenomics applications will be presented and the advantages of these approaches, as compared to classical screening, will be highlighted.

References

H. Kubinyi and G. Müller, Eds., Chemogenomics in Drug Discovery - A Medicinal Chemistry Perspective (Volume 22 of Methods and Principles in Medicinal Chemistry, R. Mannhold, H. Kubinyi and G. Folkers, Eds.), Wiley-VCH, Weinheim, 2004.

H. Kubinyi, Chemogenomics in Drug Discovery, Ernst Schering Research Foundation Workshop 58, "Chemical Genomics. Small Molecule Probes to Study Cellular Function", S. Jaroch and H. Weinmann, Eds., Springer, Berlin 2006, pp. 1-19; www.kubinyi.de/schering58-2006.pdf.

H. Kubinyi, Ed., Drug Discovery Technologies, Volume 3 of Comprehensive Medicinal Chemistry II, D. Triggle and J. Taylor, Eds., Elsevier Science, Oxford, 2006.