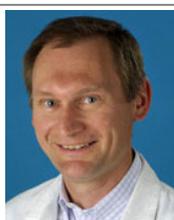


The Histamine Methods & Tools Database (HMTD)

Hubert G. Schwelberger*

Medical University Innsbruck, Department of Visceral, Transplant and Thoracic Surgery, Molecular Biology Laboratory, Schöpfstrasse 41, A-6020 Innsbruck, Austria

*Corresponding author: Hubert G. Schwelberger, e-mail: hubert.schwelberger@i-med.ac.at



Prof. Dr. Hubert G. Schwelberger studied Biochemistry at the Graz University of Technology where he also did his PhD in yeast molecular biology. After post-doctoral studies in translational regulation at the University of California Davis he moved to the Department of Surgery at the Medical University Innsbruck where he is currently head of the Molecular Biology Laboratory. His research interests include histamine metabolism, amine oxidases, tumor biology and organ transplantation. He has published over 70 research papers and several reviews and book chapters.

The European Cooperation in the field of Scientific and Technical Research (COST) is one of the longest-running European instruments supporting cooperation among scientists and researchers across Europe and is also the first and widest European intergovernmental network for coordination of nationally funded research activities. COST Action BM0806 "Recent Advances in Histamine Receptor H4R Research" (<http://www.histamineresearch.com>) brought together scientists and industrial partners from 20 COST and 6 non-COST countries and funded a multidisciplinary approach to study the newly discovered histamine receptor 4 (H4R) from April 2009 to April 2013. One important goal of COST Action BM0806 Working Group 1, which focused on methodological approaches for H4R systems investigation, was to establish and run an internet database covering all methods and tools available at participating institutions.

The goals of the "Histamine Methods & Tools Database" (HMTD) are (1) to create a comprehensive collection of all available methods including techniques, assays, cell systems, animal models, patient based studies, (2) the availability of ready-to-use protocols on the internet in standard format and style, (3) to provide contact information for method based inquiries to get technical help on the use of specific techniques and tools, (4) to provide information on the availability of critical tools such as antibodies, reagents, and compounds, and (5) to identify areas where new methods, techniques or tools should be developed.

The most important considerations when planning the database were easy and unrestricted access for users, a

simple format and clear menu structure, and inclusion only of well established and safely working protocols and tools. Secondary considerations were a simple and rapid online protocol creation, data safety and backup options, inclusion of a quality control process, and future maintenance costs. Work on the database started by collecting information from all participants of COST BM0806 using the excellent communication networks established earlier during the Action. It turned out that there was an enormous amount of techniques and tools available at participating institutions covering practically all areas of basic, preclinical and partially also clinical research in the histamine and histamine receptor field. The spectrum of methods included expertise from chemistry, biochemistry, cell and molecular biology, immunology, pharmacology, and bioinformatics in different in vitro models, isolated or cultured cells, tissues, animal models, and patients. Participants also reported on the availability of numerous assay systems and tools such as receptor ligands, antibodies, cloned DNAs, purified proteins, and transgenic animals. So everything was right there, it just had to be collected and organized in a useful way.

The database is hosted by the Medical University Innsbruck (MUI). The HMTD has been online uninterruptedly since May 2012 at <https://www.i-med.ac.at/hmtd> and uses the generic style sheet of the Medical University Innsbruck, which allows simple navigation and file management. The database is divided into the main sections General Methods, Histamine Methods, Histamine Tools, In Vitro Models, Animal Models, and Patient Studies (see figure 1). Each main section is subdivided into up to 10 subsections

that give direct links to the actual protocols or descriptions of tools. The protocols are individual files in Portable Document Format (pdf) with standard formatting and styling that can be downloaded and printed without restrictions. Each protocol has an easily comprehensible title and a short explanation, followed by a detailed description of the procedure, calculation formulas where applicable, a listing of all reagents, consumables and instruments required, and a few references. The idea is that the protocols describe well-established and tested procedures, which are self-contained without any requirement to consult additional resources or references. Nevertheless, there is information on the contributor with a contact e-mail address at the end of each protocol that can be used for technical help.

Besides the main protocols and tools sections, there is a section listing All Methods with direct links to all protocol files, a section on Submission & Comments providing brief guidelines on how to submit protocols, a listing of Staff & Contributors, and a short Disclaimer. Further, the section on Histamine Tools contains a link to the **H4R Ligands Database**, which is a development of COST Action BM0806 Working Group 3 and contains a compilation of published and unpublished data on ligands active at the histamine H4 receptor. In contrast to the HMTD, access to the H4R Ligands Database is restricted to registered users only and requires a simple registration procedure. In order to get access to this database send an e-mail providing your name and affiliation to Dr. Astrid Sasse (sasse@tcd.ie).

The database management is relatively simple using the eXtensible Information Management System (XIMS; <http://xims.info/about.html>), which was developed by the University of Innsbruck to manage its web pages. Protocols submitted by e-mail in Microsoft Word format go through a standardized short reviewing and formatting process to eliminate errors and to produce documents with a common format and style. These documents are then converted into PDF versions, uploaded on the web server and the necessary links are created and tested. For a protocol that is submitted exactly as specified in the guidelines this process takes less than five minutes, for protocols in need of corrections or additions the process is finished usually within a few days.

At the moment the HMTD is still in its infancy and it is clear that a project like this will never be completed. However, the main difficulties to start this database have been overcome and it is up and running without problems. Numerous protocols have already been uploaded and it is expected that the database will keep growing in the future to eventually become a comprehensive collection of histamine methods and tools. Based on internal evaluation and on user feedback we will continue to improve the database to make it an important resource that will make the work of researchers in the histamine field easier and facilitate future projects. Your comments on this project are highly welcome to hmttd@i-med.ac.at.

Figure 1. HMTD homepage