



ESTHER in Esterase Land

“Have you heard—there’s a new product against Alzheimer’s available.”—“You’re right. It’s an acetylcholinesterase inhibitor called tacrine. The product name is Cognex, I think.”—“Ok, could you please find more information about this?!”

Now, you could go the long way through literature through Medline (yields 16127 unsorted entries for acetylcholinesterase). Or maybe SwissProt or via the substance? You may prefer the easy way: Let ESTHER take you by the hand and lead you to esterase land.

Apart from the large, general databases, there are also specialized servers, where you get pre-selected, carefully prepared food—for example at ESTHER’s.^[1, 2] The acronym means “ESTerases, α/β -Hydrolase Enzymes and Relatives”. An inhibitor for one of these is the only legal medicament for Alzheimer patients. Which brings us back to the initial question.

ESTHER enables you to rapidly collect a large amount of information. On the start page, there is an overview and a search form, which leads you to a whole set of useful information about the particular substance (Figure 1). In addition, we can learn more about the class of compounds, acridines in our case. A list of further acridine inhibitors is just one click away. Kinetic parameters may also be listed. Test conditions and results for a large number of mutated enzymes are also available. References provide hyperlinks to abstracts (called “long text”) and Medline entries. Through the list of authors, you can find out what else a particular scientist has published in this area and sometimes even get contact information. The way to three-dimensional structures is fairly quick.

To cut a long story short: ESTHER is extremely useful. This is documented by

more than 1000 daily accesses. Around 500 people do their searches on the site on a regular basis. They enjoy a wealth of information that is intensively cross-linked thanks to the efforts of Jean-Thierry Mieg (CNRS Montpellier) and Richard Durbin (Sanger Center, Cambridge), who originally developed the system for a genome project. Today, it has become a standard for almost 100 specialized databases.^[3] ESTHER also has its roots in molecular biology, but due to the use of hyperlinks the user will not see this. The only drawbacks I see is that the user will not easily understand the advantages of all the different formatting possibilities and that the full range of possibilities will only unfold if you work with multiple browser windows at a time. On the other hand, this makes things very interesting for the expert user. Those who would like to get information quicker or in a more discrete way may download the full database to their own computers (<ftp://ftp.toulouse.inra.fr/pub/esther/>).

I like ESTHER, because it looks so modest. The layout may not meet today’s expectations, but it lets you see that the authors want to set up a server that just serves: made by scientists for scientists. Arnaud Chatonnet who runs the site at INRA Montpellier together with Xavier Cousin says, he is happy that ESTHER is up and running and has a lot of visitors. There are no blinking banners or rotating logos. The visitor is received with a quote from French writer Jean Racine instead. That’s the way ESTHER is. Click on in!

Christoph Weise
Institut für Chemie
der Freien Universität Berlin

ESTHER Database

Table of esterase (240) | Table of BLAST | Molecular Biology |
 | Metabolism | Structure | Database | Biochemistry |
 | Metabolism | Database | Acetylcholinesterase | Database |
 | Home | Contents | Submission

Search | Index | About | Bibliography | This Display

Inhibitor: Tacrine

Tacrine Type	Acridine
Other name	Cognex tetrahydroacridine THA
Chemical Nomenclature	tetrahydroacridine, 1,2,3,4-tetrahydro-9-aminoacridine
Formula	C ₁₃ H ₁₁ N
CAS number	321-84-2
MW	185.27

Nc1ccc2c(c1)ccc3ccccc23

Kinetic parameter (46)
 Paper (54)
 Structure
 Comment2
 Comment

Tacrine
 C₁₃H₁₁N * HCl MW 234.71 CAS 1084-00-8
 Treatment of Alzheimer Disease, trademark is cognex
 Reversible inhibitor of both AChE and BChE

For detailed information about this page and ESTHER Home Page visit ACEDB Home Page: <http://www.acedb.org/>
 Abstracts reports and database

Figure 1. Sample entry in ESTHER

- [1] X. Cousin, T. Hotelier, K. Giles, J. P. Toutant, A. Chatonnet, *Nucl. Acid Res.* **1998**, 26, 226-228.
- [2] A. Chatonnet, T. Hotelier, X. Cousin, *Chem. Biol. Interact.* **1999**, 120, 567-576.
- [3] <http://www.acedb.org/>

For further information visit
<http://www.ensam.inra.fr/cholinesterase/>
 or contact
chatonne@ensam.inra.fr