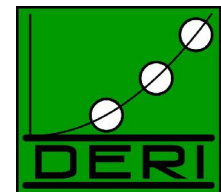


# <a>Tag

## Matthias Samwald

Konrad Lorenz Institute  
for Evolution & Cognition Research



```

prefix go: <http://purl.org/obo/owl/GO#>
prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
prefix owl: <http://www.w3.org/2002/07/owl#>
prefix mesh: <http://purl.org/ontology/med/mesh#>
prefix sc: <http://purl.org/spar/sc/owl/sciencecommons#>
prefix ro: <http://www.obolibrary.org/ro/ro.owl#>

select ?genename ?proteinname
where
{
  graph <http://purl.org/commons/hcls/mesh#>
  {
    ?paper ?p mesh:D01111
    ?article sc:identified_by ?p
    ?gene sc:describes_gene_or_gene_product_mentioned_by ?article.
  }
  graph <http://purl.org/commons/hcls/goa>
  {
    ?protein rdfs:subClassOf ?res.
    ?res owl:onProperty ro:has_function.
    ?res owl:someValuesFrom ?res2.
    ?res2 owl:onProperty ro:realized_as.
    ?res2 owl:someValuesFrom ?process.
  }
  graph <http://purl.org/commons/hcls/20070416/classrelations>
  {
    {?process <http://purl.org/obo/owl/obo#part_of> go:GO_0007166}
    union
    {?process rdfs:subClassOf go:GO_0007166 }
    ?protein rdfs:subClassOf ?parent.
    ?parent owl:equivalentClass ?res3.
    ?res3 owl:hasValue ?gene.
  }
  graph <http://purl.org/commons/hcls/gene>
  {
    ?gene rdfs:label ?genename
  }
  graph <http://purl.org/commons/hcls/20070416>
  {
    ?process rdfs:label ?processname
  }
}

```

# GREAT!

Mesh: Pyramidal Neurons

Pubmed: Journal Articles

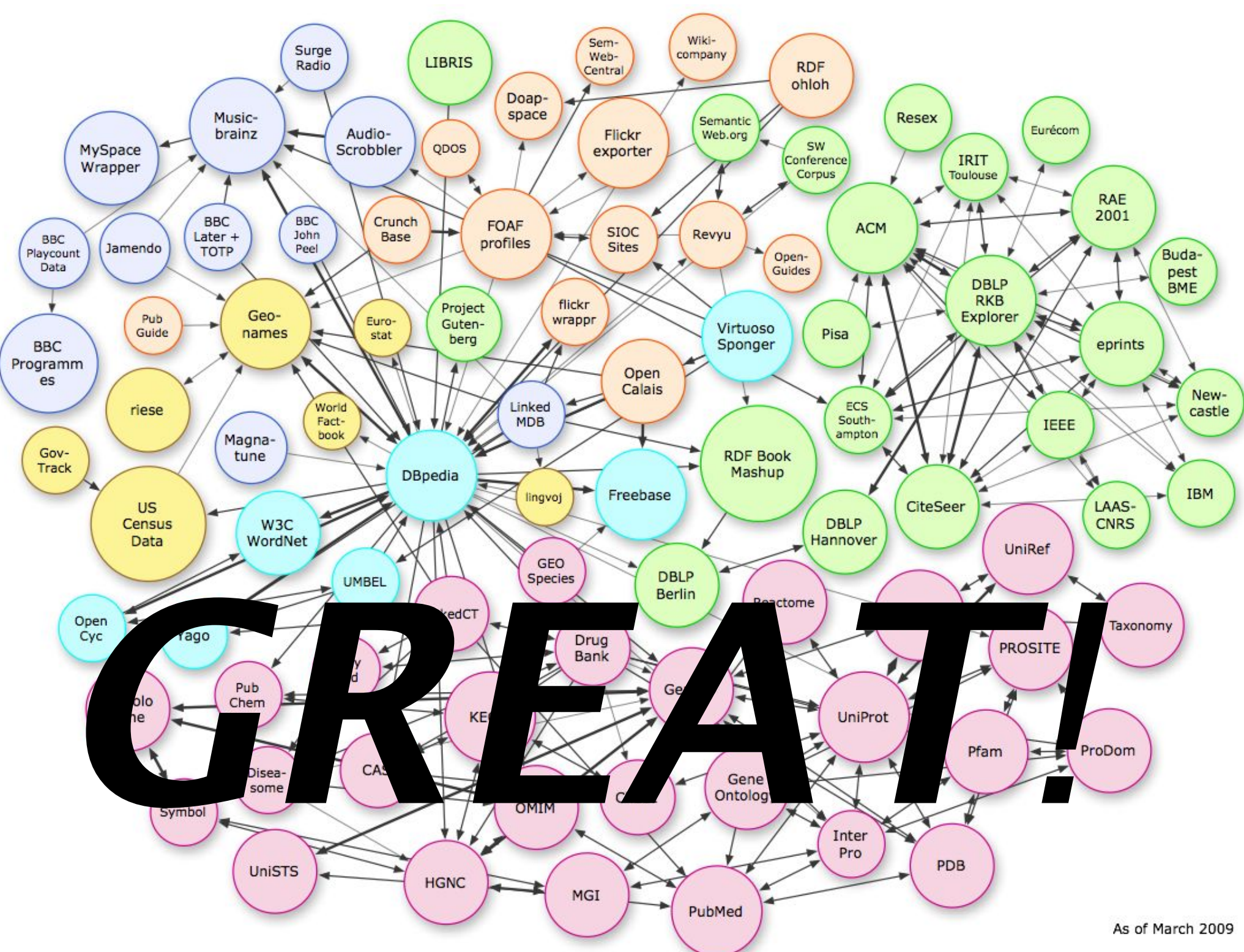
Entrez Gene: Genes

GO: Signal Transduction



graph <http://purl.org/commons/hcls/20070416/classrelations>
{{?process <http://purl.org/obo/owl/obo#part\_of> go:GO\_0007166}
union
{?process rdfs:subClassOf go:GO\_0007166 }}
?protein rdfs:subClassOf ?parent.
?parent owl:equivalentClass ?res3.
?res3 owl:hasValue ?gene.

*Inference required*



but...

**still very few tools suitable for end-users.**

still quite non-trivial for developers to build  
light-weight applications that work with it and  
provide good user experience.



**<a>Tag**


**tagging statements, not documents.  
tagging with entities, not strings.**

aTag Generator | DERI Galway - Health Care and Life Sciences Working Group - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://hcls.deri.org/atag/generator/ antagonist

# <a>Tag



Generator Examples Datasets Pastebin Pastebin (Exhibit)

## Generator

aTags ("associative tags") are snippets of HTML that capture the information that is most important to you in a machine-readable, interlinked format, making it easier for you and others to see the big picture.


### aTag Generator Bookmarklet

With this bookmarklet you can create aTags for any kind of content on the web. To use it:

- Drag the **aTag this** bookmarklet to your bookmarks bar. (You might need to enable the bookmarks bar in your browser first.)
- When you are at a webpage that contains a snippet of text that you want to capture with an aTag, **select the snippet of text**, then **click on the aTag bookmarklet** in your bookmarks bar.
- A pop-up window will appear, containing the snippet of text you selected. Add tags to this snippet of text by typing in the box below it. Matching terms will be suggested as you type. Tag recommendation is currently based on [DBpedia](#). If no suitable term already exists, you can choose to create a new term.
- When you are finished, **click on 'Generate aTag'**.
- You can copy and paste the generated aTag into your HTML-based application (such as a [Wordpress](#) blog, content management system, e-mail). The aTags on the web will be found by RDF-enabled search engines.
- If you are an RDF/OWL enthusiast, you can also visualize the RDF in the aTag you created with the [RDFa](#) highlight bookmarklet you can find [here](#).

### Technical Background

aTags are based on Semantic Web standards and [Linked Data](#) practices. Specifically, they make use of [RDFa](#), the [SIOC](#) vocabulary and various domain ontologies and taxonomies that are available in RDF/OWL format. The autocomplete functionality is based on [Apache Solr](#).

Fertig 

[Datei](#) [Bearbeiten](#) [Ansicht](#) [Chronik](#) [Lesezeichen](#) [Extras](#)

[RDFa Highlight](#) [post to Favik](#) [aTag this](#)

All Databases PubMed Nucleotide

Search PubMed for

[Limits](#) [Preview/Index](#) [History](#) [Clipboard](#)

Display AbstractPlus Show 20

All: 1 Review: 0

1: [Neuroscience](#). 2001;105(3):663-9.

### Huperzine A, a nootropic alkaloid, inhibits N-methyl dissociated hippocampal neurons.

[Zhang JM](#), [Hu GY](#).

State Key Laboratory of Drug Research, Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, 2 China.

Huperzine A, a nootropic alkaloid isolated from a Chinese plant, is one of the most promising agents to treat Alzheimer's disease. It was found to inhibit the N-methyl-D-aspartate (NMDA) receptor current in addition to causing an inhibitory effect on acetylcholine release. The mechanisms underlying NMDA receptor inhibition were investigated by voltage-clamp recording in CA1 pyramidal neurons in rat hippocampus. Huperzine A reversibly inhibited the NMDA receptor current (IC<sub>50</sub> 1.2 μM, Hill coefficient=0.92), whereas it had no effect on the L-glutamate (5 μM) and dithiothreitol (5 mM) to the external solution. However, addition of spermine (200 μM) to the external solution caused a parallel shift to the right of the huperzine A concentration-response curve. From these we suggest that huperzine A acts as a non-competitive antagonist of the NMDA receptors, via a competitive interaction with one of the polyamine binding sites. The potential relevance of NMDA receptor antagonist activity of huperzine A to the treatment of Alzheimer's disease is discussed.

New aTag - Mozilla Firefox

[http://hcls.deri.org/atag-dev/add\\_atag.php?url=http%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpubmed%2F11516831](http://hcls.deri.org/atag-dev/add_atag.php?url=http%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpubmed%2F11516831)

**Page title** "Huperzine A, a nootropic alkaloid, inhibits N-meth... [Neuroscience. 2001] - PubMed Result"  
**URL** "http://www.ncbi.nlm.nih.gov/pubmed/11516831?ordinalpos=7&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\_ResultsPanel.Pubmed\_DefaultRe

huperzine A acts as a non-competitive antagonist of the NMDA receptors,

**Add tags**

Huperzine A x Non-competitive inhibition x nda

- NMDA
- NMDA antagonist
- NMDA blocker
- Create new tag: "nmda"
- NMDA channel
- NMDA receptor**
- NMDA receptor antagonist
- NMDA receptor antagonists
- NMDA receptor blocker
- APV (NMDAR antagonist)

Fertig

- Huperzine A, a nootropic alkaloid, inhibits N-methyl-D-aspartate-induced current in rat di...
- Long-term potentiation in hippocampus of rats is enhanced by endogenous acetylcholine in a...
- [huperzine nmda](#) (13)



- Generator
- Examples
- Datasets
- Pastebin
- Pastebin (Exhibit)

### Pastebin

You can add aTags to this page with the [aTag bookmarklet](#). The data embedded in this page can be visualized and processed with [various tools](#).



| "Huperzine A acts as a non-competitive antagonist of the NMDA receptors" aTags: [Huperzine A Receptor antagonist NMDA receptor](#) (Source) |

| "Radiofrequency ablation (RFA) for the treatment of superficial venous reflux has been available since 1998 and is now established as a safe and efficacious treatment modality for the ablation of refluxing superficial and perforating veins." aTags: [Radiofrequency ablation Varicose veins](#) (Source) |

| "Evodia rutaecarpa (Rutaceae) is used in TCM for cardiotonic, restorative and analgesic effects" aTags: [Evodiamine Analgesic Heart](#) (Source) |

| "Coptis chinensis (Ranunculaceae) has been used in TCM for several conditions. A methanol extract fraction of C. chinensis, jatrorrhizine and berberine are MAO inhibitors [Kong et al], indicating potential antidepressant activity, and C. chinensis and some alkaloids isolated from this plant (berberine, coptisine and palmatine) are reported to be anti-Cholinesterase" aTags: [Coptis chinensis Monoamine oxidase inhibitor Acetylcholinesterase inhibitor](#) (Source) |

| "In TCM, Codonopsis pilosula (Campanulaceae) root is used for various disorders including amnesia, and is believed to promote blood circulation and enhance vitality" aTags: [Codonopsis pilosula Therapy Amnesia Circulatory System](#) (Source) |

| "Biota orientalis (Coniferae) is used in TCM for insomnia and amnesia" aTags: [Biota orientalis Insomnia Amnesia](#) (Source) |

| "A crude alcoholic extract of Angelica archangelica (Umbelliferae), which has been used in TCM for cerebral diseases, displaced nicotine binding to nicotine receptors in a concentration-dependent manner, but it is unknown if this effect was due to agonistic or antagonistic binding" aTags: [Angelica Nicotinic acetylcholine receptor](#) (Source) |

| "Salvia miltiorrhiza root may inhibit neuronal cell death by inhibition of presynaptic glutamate release" aTags: [Salvia miltiorrhiza Therapy Excitotoxicity Glutamatergic](#) (Source) |

| "Salvia miltiorrhiza prescribed in TCM to stabilise the heart and calm nerves. Official indications for the root include treatment of



there is more than meets the eye...

RDFa

+

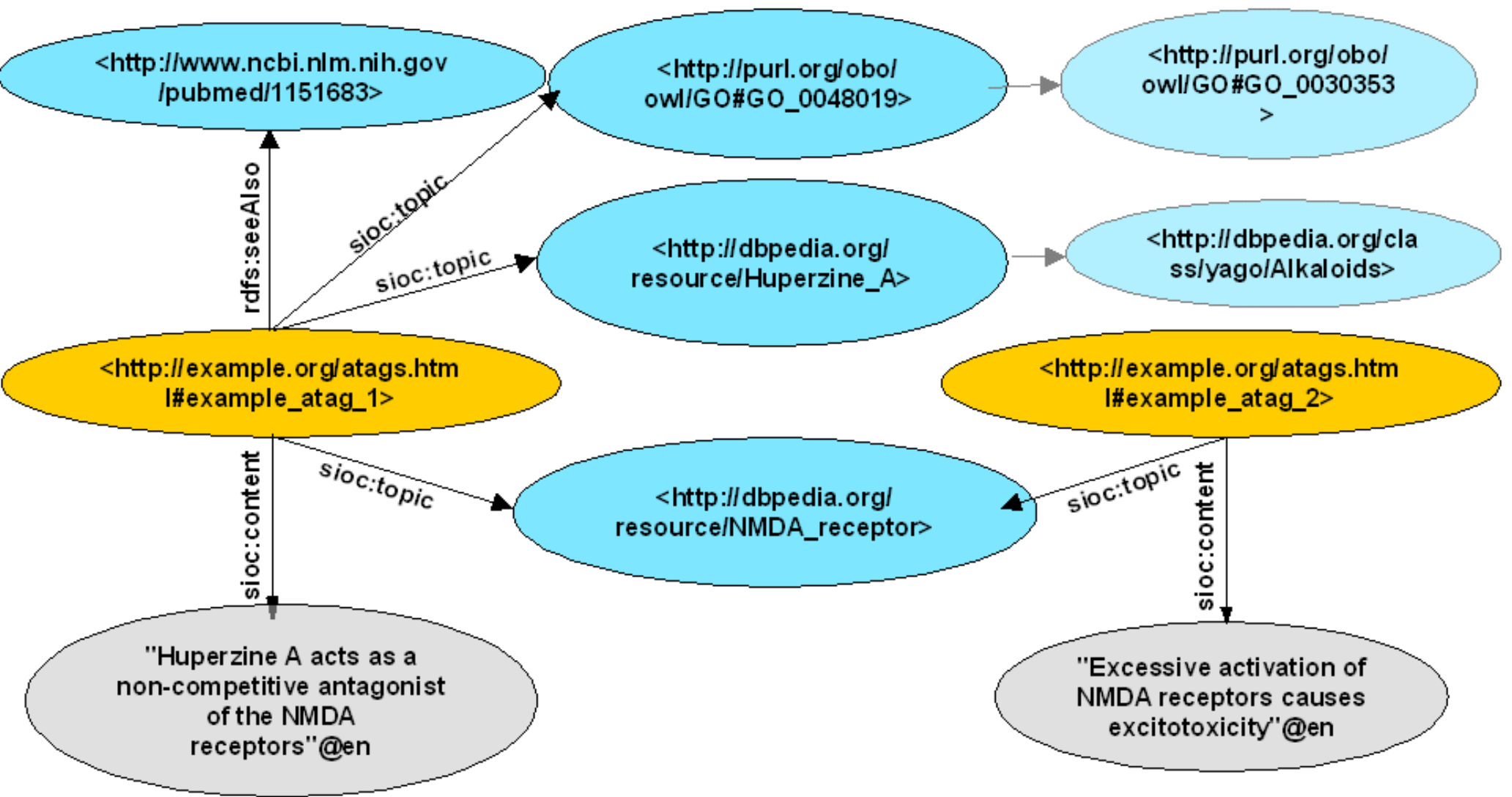
SIOC

+

domain ontologies/terminologies  
(OBO, Dbpedia etc.)

# What the machine sees...

```
<http://hcls.deri.org/atag-data/pastebin.html#49ddfee65f7f4> a
  sioc:Item ;
  sioc:content "Huperzine A acts as a non-competitive
                antagonist of the NMDA receptors"@en ;
  sioc:topic  <http://dbpedia.org/resource/Huperzine_A> ,
              <http://purl.org/obo/owl/GO#GO_0048019> ,
              <http://dbpedia.org/resource/NMDA_receptor> ;
  rdfs:seeAlso <http://www.ncbi.nlm.nih.gov/pubmed/11516831> .
```



**RDFa is simple to embed into existing systems**  
**websites, blogs, wikis, e-mails, biomedical**  
**databases...**

handling data and annotations via Copy & Paste

## Some aTags about neuropharmacology etc.

---

Below I have collected some interesting statements from research papers I recently stumbled upon. They are encoded as [aTags](#).

| “Huperzine A acts as a non-competitive antagonist of the NMDA receptors” aTags: [Huperzine A receptor antagonist activity](#) [NMDA receptor](#) (Source) |

| “some effects of CDP-choline could be mediated by changes in brain platelet-activating factor (PAF) levels” aTags: [Citicoline](#) [Platelet-activating factor](#) (Source) |

| “Changes in brain striatum dopamine and acetylcholine receptors induced by chronic CDP-choline treatment of aging mice” aTags: [Striatum](#) [Dopamine receptor](#) [Acetylcholine receptor](#) [Citicoline](#) (Source) |

| “changes in ERK phosphorylation in hippocampus and PFC were regulated by GABAA receptor in a learning and memory paradigm under acute restraint stress conditions” aTags: [MAPK/ERK pathway](#) [Hippocampus](#) [Stress](#) (Source)|

| “our data suggest actions of memantine beyond NMDA receptor antagonism, including stimulating effects on cholinergic signalling via muscarinic receptors” aTags: [Memantine](#) [Muscarinic acetylcholine receptor](#) (Source)|

Written by admin  
March 18th, 2009 at 8:32 pm

Posted in [Uncategorized](#)

**add to blog post**



# SIDER drug side effect data



This document/database contains information about side effects (adverse drug reactions) derived from [SIDER](#). Relevant terms are mapped to DBpedia, the OBO Disease ontology and the OBO symptom ontology. Mappings were established via shared PubChem and UMLS identifiers. SIDER entries where no mapping for drug or disease/symptom could be established were omitted.

**License:** Except as otherwise noted, this work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 License](#). This data has been derived from a dataset by Kuhn et al. See <http://sideeffects.embl.de/download/> for further information (including information about commercial use).

**Disclaimer:** The content of this document/database is intended for educational and scientific research purposes only. It is not intended as a substitute for professional medical advice, diagnosis or treatment.

This document was generated by Matthias Samwald on 30 April 2009

- | "[methadone](#) might cause [weight loss](#) . " |
- | "[methadone](#) might cause [urinary retention](#) . " |
- | "[methadone](#) might cause [palpitations](#) . " |
- | "[methadone](#) might cause [constipation](#) . " |
- | "[methadone](#) might cause [weakness](#) . " |


**database converted to  
aTags**

Whatizit / Science Commons RDFa (prototype) - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://whatizit.neurocommons.org/index.py/pmid?pipeline=whatizitEBIMedDiseaseChemicals&que

Google

 science commons

Science Commons text annotation service | highlight RDF/OWL (experimental) | Documentation

## Science Commons text mining results

powered by [EBI Whatizit](#)

Note: The `<a>` signs contain annotations in [aTag](#) format (embedded [RDFa](#)). You can copy & paste these annotations to other RDFa-enabled applications.

[pmid:11263250](#) [HTML] [XML]

J W Ye, Y Z Shang, Z M Wang, X C Tang  
Acta pharmacologica Sinica  
Jan 2000

### Huperzine A ameliorates the impaired **memory** of aged rat in the Morris **water** maze performance `<a>`.

AIM: To determine the **memory**-improving properties of huperzine A in aged rats with **memory** impairments naturally occurring or induced by scopolamine `<a>`. METHODS: Morris **water** maze was used to investigate the effects of huperzine A on the acquisition and **memory** impairments `<a>`. RESULTS: During 7- day acquisition trials, aged rats took longer latency to find the platform. Huperzine A (0.1-0.2 mg/kg, s.c.) could significantly reduce the latency. **In** the probe trials on the eighth day, huperzine A (0.1, 0.2 and 0.4 mg/kg, s.c.) significantly increased the time in the quadrant where platform had disappeared in aged rats `<a>`. **In** the acute experiment, scopolamine (0.1 mg/kg, i.p.) significantly impaired spatial **memory** in the trained aged rats `<a>`. Huperzine A (0.4 mg/kg, s.c.) significantly reversed the **memory** deficits induced by scopolamine `<a>`. CONCLUSION: Huperzine A ameliorates the impaired **memory** naturally occurring or induced by scopolamine in aged rats `<a>`.

Fertig

aTags generated by NLP  
web service

Datasource	Description	Source of entities used for tagging
SIDER	Drug side-effect data. Size: 100,000 RDF statements.	DBpedia, ChEBI
PDSP Ki Database	Receptor-ligand interactions quantified by Ki value, emphasis on data about psychoactive substances.	SenseLab, ChEBI
PubMed Conclusion sections	Conclusion sections extracted from PubMed abstracts, annotated with Medical Subject Headings. Size: 1,8 million RDF statements.	SKOS version of Medical Subject Headings (MeSH)
Science Commons Text Annotation Service	Webservice that annotates sentences in PubMed abstracts with aTags	Gene Ontology, ChEBI, some smaller OBO ontologies, Uniprot and NCBI Taxonomy
aTag Pastebin	User-generated content, mostly curated from scientific texts on the web, created with the aTag bookmarklet. Contains curated statements in diverse domains such as pharmacology and neuroscience.	DBpedia



- Generator
- Examples
- Datasets
- Pastebin
- Pastebin (Exhibit)

### Examples visualized with SIMILE Exhibit (containing embedded RDFa)

21 Elemente gefiltert von ursprünglich 296 (Alle Filter zurücksetzen)

sortiert nach: [Bezeichnungen](#); [sowie nach...](#) •  Gruppierung wie Sortierung

#### 1. <http://hcls.deri.org/atag/generator/pastebin-exhibit#4a2f8b6579a1f> (Verweis)

Bezeichnung: <http://hcls.deri.org/atag/generator/pastebin-exhibit#4a2f8b6579a1f>  
 type: Item  
 URI: <http://hcls.deri.org/.../ibit%234a2f8b6579a1f>  
 modified: no  
 content: Patients with AD and neuropsychiatric features: exploratory findings helped to develop three hypotheses that will have to be proven in further studies: (1) there is no significant difference in the efficiency between the Ginkgo Biloba extract EGb 761(R) and donepezil, (2) a combination therapy will be superior to a mono-therapy with one of both substances and (3) there will be less side effects under a combination therapy than under mono-therapy with donepezil  
 topic: [http://dbpedia.org/resource/Ginkgo\\_biloba](http://dbpedia.org/resource/Ginkgo_biloba), <http://dbpedia.org/resource/Donepezil>, [http://dbpedia.org/resource/Alzheimer%27s\\_disease](http://dbpedia.org/resource/Alzheimer%27s_disease)  
 seeAlso: [http://www.ncbi.nlm.nih.gov/pubmed/19347685?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/19347685?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)  
 ip\_address: 85.127.77.150

#### 2. <http://hcls.deri.org/atag/generator/pastebin-exhibit#4a2f8be3e9934> (Verweis)

Bezeichnung: <http://hcls.deri.org/atag/generator/pastebin-exhibit#4a2f8be3e9934>  
 type: Item  
 URI: <http://hcls.deri.org/.../ibit%234a2f8be3e9934>  
 modified: no  
 content: Ginkgo biloba extract EGb(R)761 exerts anti-angiogenic effects via activation of tyrosine phosphatases  
 topic: [http://dbpedia.org/resource/Ginkgo\\_biloba](http://dbpedia.org/resource/Ginkgo_biloba), <http://dbpedia.org/resource/Anti-angiogenics>, [http://dbpedia.org/resource/Protein\\_tyrosine\\_phosphatase](http://dbpedia.org/resource/Protein_tyrosine_phosphatase)  
 seeAlso: [http://www.ncbi.nlm.nih.gov/pubmed/19175691?ordinalpos=9&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/19175691?ordinalpos=9&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)  
 ip\_address: 85.127.77.150

Text Search:

Tag	1	<input checked="" type="checkbox"/>
21 <a href="http://dbpedia.org/resource/Ginkgo_biloba">http://dbpedia.org/resource/Ginkgo_biloba</a>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9 <a href="http://dbpedia.org/resource/Therapy">http://dbpedia.org/resource/Therapy</a>	<input type="checkbox"/>	<input type="checkbox"/>
8 <a href="http://dbpedia.org/resource/Alzheimer%27s_disease">http://dbpedia.org/resource/Alzheimer%27s_disease</a>	<input type="checkbox"/>	<input type="checkbox"/>
8 <a href="http://dbpedia.org/resource/Huperzine_A">http://dbpedia.org/resource/Huperzine_A</a>	<input type="checkbox"/>	<input type="checkbox"/>
7 <a href="http://dbpedia.org/resource/Acetylcholinesterase_inhibitor">http://dbpedia.org/resource/Acetylcholinesterase_inhibitor</a>	<input type="checkbox"/>	<input type="checkbox"/>
6 <a href="http://dbpedia.org/resource/GABAB_receptor">http://dbpedia.org/resource/GABAB_receptor</a>	<input type="checkbox"/>	<input type="checkbox"/>
5 <a href="http://dbpedia.org/resource/Heart">http://dbpedia.org/resource/Heart</a>	<input type="checkbox"/>	<input type="checkbox"/>
4 <a href="http://dbpedia.org/resource/...">http://dbpedia.org/resource/...</a>	<input type="checkbox"/>	<input type="checkbox"/>

IP Address

8	85.127.77.150
5	131.130.132.4
4	77.119.24.141
2	10.2.19.6
2	85.127.77.98







VisiNav -- Visual Data Navigation - Mozilla Firefox

File Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://visinav.deri.org/atags/list?keyword=memantine

Home Content

memantine Search


Detail List Table Results 1 - 10 of 10

label comment content ip\_address atcPrefix width atcprefix casNumber drugbank casnumber abstract

topic navigate link → NMDA receptor a... Muscarinic acet... Memantine 5-HT3 antagonist 5-HT3 receptor subject metabolism hasPhotoCollect... image

**Memantine**  
<http://en.wikipedia.org/wiki/Memantine>  
 Document Document

**Memantine**  
<http://rdf.freebase.com/ns/guid.9202a8c04000641f80000000004b2c53>

  
 Resource Drug antagonist 5 more  
 Memantine is the first in a novel class of Alzheimer's disease medications acting on the glutamatergic system by blocking NMDA glutamate receptors. Memantine was first synthesized and patented by Eli Lilly and Company in 1968 (as cited in the Merck Index)...

**Memantine**  
<http://dbpedia.org/resource/Memantine>

**Memantine**  
<http://www4.wiwiss.fu-berlin.de/flickrwrappr/photos/Memantine>

[49c0fd66ad0a3](#)

Fertig zotero



# <a>Tag Explorer

Search for facts and statements on the web

## Current Selection

remove all

(x) all\_text\_1:varenicline

(x) broader\_label:Tobacco Use Cessation

## Search

(press ESC to close suggestions)

## Tags

Benzazepines (9)

Humans (9)

Quinoxalines (9)

Smoking Cessation (9)

Adolescent (8)

Adult (8)

Bupropion (8)

Middle Aged (8)

Aged (7)

Double-Blind Method (5)

## Broader tags

Heterocyclic Compounds, 2-Ring (9)

Hominidae (9)

Tobacco Use Cessation (9)

<< < > >> displaying 1 to 9 of 9

**Varenicline was more efficacious than bupropion SR or placebo. Varenicline's efficacy versus placebo was not influenced by factors predictive of abstinence.**

Adolescent Smoking Follow-Up Studies Aged Humans Adult Middle

Aged Quinoxalines Benzazepines Double-Blind Method Antidepressive Agents, Second-Generation Bupropion Smoking Cessation

**The economic benefit of varenicline is improved over bupropion, despite the increased initial cost of varenicline.**

Program Evaluation Humans Absenteeism Time Factors Cost-Benefit

Analysis Quinoxalines Benzazepines Cost Savings Maintenance Health Benefit Plans, Employee Receptors, Nicotinic Decision Trees Bupropion Smoking Cessation Employer Health Costs Nicotinic Agonists

**Varenicline significantly reduces craving and the rewarding effects of smoking after the target quit date to a greater extent than bupropion, which may contribute to varenicline's greater efficacy for smoking cessation. Varenicline's lack of effect in reducing insomnia, restlessness and increased appetite in this analysis suggests that receptors other than the alpha4-beta2 nicotinic acetylcholine receptor subtype may be implicated in these withdrawal symptoms.**

Adolescent Follow-Up Studies Aged Nicotine Motivation Humans Adult Middle

Aged Delayed-Action Preparations Substance Withdrawal

Syndrome Affect Quinoxalines Benzazepines Double-Blind Method Randomized Controlled Trials as Topic Multicenter Studies as Topic Dopamine Uptake Inhibitors Tobacco Use Disorder Bupropion Smoking Cessation Clinical Trials, Phase III as Topic Nicotinic Agonists

**Open-label varenicline augmentation was associated with significant improvement in mood in a small sample of outpatient smokers with persistent**

creating aTags and aTag-enabled applications is simple and fun!

**if you want to participate,  
contact me!**

<http://hcls.deri.org/atag>



Tom Sawyer convincing someone else to do his work