

Urease

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Urease is an enzyme that catalyzes the hydrolysis of urea into carbon dioxide and ammonia. The reaction occurs as follows: $\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{CO}_2 + 2\text{NH}_3$. In 1926 James Sumner showed that urease is a protein. Urease is found in bacteria, yeast and several higher plants. Characteristics: *Active site metal: nickel* Molecular weight: 480 kDa or 545 kDa for Jack Bean Urease . * Optimum pH: 7.4* Optimum Temperature: 60 degrees Celsius* Enzymatic specificity: urea and hydroxyurea* Inhibitors: heavy metalsThe multi-subunit enzyme usually has a 3:3 stoichiometry with a 2-fold symmetric structure . An exceptional urease is found in *Helicobacter pylori*, which combines four of the regular six subunit enzymes in an overall tetrahedral assembly of 24 subunits . This supra-molecular assembly is thought to confer additional stability for the enzyme in this organism, which functions to produce ammonia in order to neutralise gastric acid. The presence of urease is used in the diagnosis of *Helicobacter* species.

Recent Publications on Urease:



- [Employment of pumpkin \(*Cucumis melo*\) urease entrapped in alginate beads for quantitation of cadmium in aqueous media.](#)
The potential of employment of free as well as alginate-immobilized urease... 3rd October, 2008
Department of Biochemistry, Faculty of Science, Banaras Hindu University,- J Enzyme Inhib Med Chem. 2008 Oct 1:1. ([DOI Direct Link](#))
- [Role of cyclooxygenase-2 functional gene polymorphisms in *Helicobacter pylori* induced gastritis and gastric atrophy.](#)
In India, the role of host genetic factors is poorly studied for... 1st October, 2008
Department of Genetics, Sanjay Gandhi Postgraduate Institute of Medical- Mol Cell Biochem. 2008 Sep 30. ([DOI Direct Link](#))
- [A Genomic View on Nitrogen Metabolism and Nitrogen Control in *Mycobacteria*.](#)
*Knowledge about nitrogen metabolism and control in the genus *Mycobacterium*...* 1st October, 2008
Lehrstuhl für Mikrobiologie, Friedrich-Alexander-Universität- J Mol Microbiol Biotechnol. 2008 Sep 29. ([DOI Direct Link](#))
- [The structure of urease activation complexes examined by flexibility analysis, mutagenesis, and small-angle X-ray scattering.](#)
*Conformational changes of *Klebsiella aerogenes* urease apoprotein...* 1st October, 2008
Department of Biochemistry & Molecular Biology, Michigan State University,- Arch Biochem Biophys. 2008 Sep 18. ([DOI Direct Link](#))
- [Effects of slow-release urea on ruminal digesta characteristics and growth performance in beef steers.](#)
Two experiments were conducted to evaluate the effects of slow-release... 30th September, 2008
Department of Animal and Food Sciences, University of Kentucky, Lexington- J Anim Sci. 2008 Sep 26. ([DOI Direct Link](#))
- [Suppressive Effects of Selected Food Phytochemicals on CD74 Expression in NCI-N87 Gastric](#)

Carcinoma Cells.

Helicobacter pylori (*H. pylori*) is one of the most widespread human...27th September, 2008
Division of Food Science and Biotechnology, Graduate School of- J Clin Biochem Nutr. 2008
Sep;43(2):109-17. ([DOI Direct Link](#))

- [A Heavy-Atom Isotope Effect and Kinetic Investigation of the Hydrolysis of Semicarbazide by Urease from Jack Bean \(*Canavalia ensiformis*\).](#)
*A kinetic investigation of the hydrolysis of semicarbazide by urease gives...*27th September, 2008
- Biochemistry. 2008 Sep 26. ([DOI Direct Link](#))
- [Endoscopic findings and *Helicobacter pylori* in children on long-term hemodialysis.](#)
*The aim of this study is to evaluate the prevalence of GI symptoms,...*27th September, 2008
Department of Pediatric Nephrology, Faculty of Medicine, Liver and- Pak J Biol Sci. 2008 Jul
15;11(14):1840-3.
- [Estimation of the overall kinetic parameters of enzyme inactivation using an isoconversional method.](#)
*An isoconversional method is proposed in order to calculate the kinetic...*26th September, 2008
Department of Physical Chemistry, Faculty of Chemistry, University of- Biophys Chem. 2008 Sep 11. ([DOI Direct Link](#))
- [Soil enzyme activities of long-term reclaimed wastewater-irrigated soils.](#)
*Studies have shown that physical and chemical properties of soils may be...*26th September, 2008
Dep. of Environmental Sciences, Univ. of California, Riverside, CA 92521,- J Environ Qual. 2008
Sep-Oct;37(5 Suppl):S36-42. ([DOI Direct Link](#))
- [Effect of subclinical *Helicobacter pylori* infection on gastric wall thickness: multislice CT evaluation.](#)
*PURPOSE: To evaluate the effect of subclinical Helicobacter pylori...*25th September, 2008
Department of Radiology, Karadeniz Technical University School of- Diagn Interv Radiol. 2008
Sep;14(3):138-42.
- [\[Effects of bio-mulching on rhizosphere soil microbial population, enzyme activity and tree growth in poplar plantation\]](#)
*Coriaria nepalensis, Pteridium aquilinum var. latiuscukum, Imperata...*24th September, 2008
College of Forest Resources and Environment, Nanjing Forestry University,- Ying Yong Sheng Tai Xue
Bao. 2008 Jun;19(6):1204-10.
- [Evaluation of composts and liming materials in the phytostabilization of a mine soil using perennial ryegrass.](#)
*A microcosm experiment was carried out to evaluate the effects of...*19th September, 2008
Department of Environmental Sciences, Escola Superior Agraria de Beja, Rua- Sci Total Environ. 2008
Sep 15. ([DOI Direct Link](#))
- [Helicobacter pylori induces gastritis and oxidative stress after distal gastrectomy.](#)
*BACKGROUND/AIMS: Helicobacter pylori is a carcinogen for gastric cancer....*18th September, 2008
Department of Gastroenterological Surgery, Osaka City University Graduate- Hepatogastroenterology.
2008 Jul-Aug;55(85):1484-6.
- [High-Affinity Ni\(2+\) Binding Selectively Promotes Binding of *Helicobacter pylori* NikR to Its Target Urease Promoter.](#)
*NikR is a prokaryotic transcription factor that regulates the expression...*16th September, 2008
Laboratory of Bioinorganic Chemistry, Department of Agro-Environmental- J Mol Biol. 2008 Sep 4. ([DOI Direct Link](#))

Urease Clinical Trials:



- [Feasibility Study of Phototherapy System to Treat H Pylori](#)



Urease Patents:

- 7405192- [Bone morphogenic proteins \(BMP\), BMP receptors and BMP binding proteins and their use in the diagnosis and treatment of glaucoma](#)
- 7416729- [Methods of treating rheumatoid arthritis with anti-TNF antibodies](#)
- 7416839- ["Prionins", highly specific markers for noninvasive presymptomatic detection of TSE diseases, and targets for therapeutic reagents to prevent and control TSE diseases in animals and humans](#)
- 7416843- [Post protein hydrolysis removal of a potent ribonuclease inhibitor and the enzymatic capture of DNA](#)
- 7416876- [N-carbobenzyloxy \(N-CBZ\)-deprotecting enzyme](#)
- 7417120- [Purified Stat proteins and methods of purifying thereof](#)
- 7419670- [Method of treating arthritis with SERP-1 and an immunosuppressant](#)
- 7419785- [Methods and compositions in breast cancer diagnosis and therapeutics](#)
- 7419804- [CASH \(Caspase Homologue\) with death effector domain, modulators of the function of FAS](#)
- 7419806- [Immunogenic Mycoplasma hyopneumoniae polypeptides](#)
- 7419807- [Chlamydia protein, gene sequence and uses thereof](#)
- 7416727- [Polypeptide variants with altered effector function](#)
- 7413895- [DNA encoding neutral amino acid transporter](#)
- 7413781- [Gels for encapsulation of biological materials](#)
- 7405286- [Stars--A muscle-specific actin-binding protein](#)
- 7407771- [Cash \(caspase homologue\) with death effector domain, modulators of the function of FAS receptors](#)
- 7407790- [Recombinant double-stranded RNA phages and uses thereof](#)
- 7410616- [Device for the controlled exposure of reservoir-based sensors](#)
- 7410758- [Methods and compositions relating to HPV-associated pre-cancerous and cancerous growths, including CIN](#)
- 7410954- [Adenovirus serotype 30 \(Ad30\)](#)
- 7411038- [Artificial red blood cells](#)
- 7411051- [Antibodies to HDPPA04 polypeptide](#)
- 7413537- [Directed evolution of disulfide-bonded micro-proteins](#)
- 7413550- [Visual indicating device for bad breath](#)
- 7419814- [Mammalian sphingosine kinase type 2 isoforms, cloning, expression and methods of use thereof](#)
- 7419821- [Apparatus and methods for analyte measurement and immunoassay](#)
- 7425429- [Method for the identification of tissue-specific regulatory sequences](#)
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- 7425330- [Methods of inhibiting TNF.alpha. activity in the blood of a patient](#)
- 7420030- [Aminopeptidase A \(APA\) targeting peptides for the treatment of cancer](#)
- 7420100- [Methods and compositions relating to HDAC 4 and 5 regulation of cardiac gene expression](#)
- 7422670- [System for pH-neutral stable electrophoresis gel](#)
- 7422680- [Animal waste effluent treatment system](#)
- 7422867- [Methods of identifying compounds that modulate IL-4 receptor mediated IgE synthesis utilizing a CLLD8 protein](#)
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- 7423010- [Nonporous microparticle-prodrug conjugates for treatment of infection](#)
- 7423015- [Antihelminthic drugs as a treatment for hyperproliferative diseases](#)
- 7423194- [Animal models for demyelination disorders](#)
- 7425327- [Choline binding proteins for anti-pneumococcal vaccines](#)
- 7429650- [Methods and compositions in breast cancer diagnosis and therapeutics](#)

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