

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 metals The 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. ([From the Wikipedia article Urease](#).)

Recent Publications on Urease:



- [Iron deficiency, Helicobacter infection and gastritis.](#)
Despite elegant regulatory mechanisms, iron deficiency anemia (IDA)... 13th November, 2009
Department of Hematology, Shaare Zedek Medical Center, Jerusalem, Israel.- *Acta Haematol.* 2009;122(2-3):97-102. Epub 2009 Nov 10. ([DOI Direct Link](#))
- [Characterization of an O-desmethylangolensin-producing bacterium isolated from human feces.](#)
A bacterium that converted daidzein to O-desmethylangolensin was isolated... 12th November, 2009
Department of Applied Microbiology, Gifu Prefectural Research Institute- *Arch Microbiol.* 2009 Nov 11. ([DOI Direct Link](#))
- [Comparative toxicity of chlorpyrifos and its oxon derivatives to soil microbial activity by combined methods.](#)
The inhibitory effects of the pesticide Chlorpyrifos (CPF) and its oxon... 11th November, 2009
Key Laboratory of Biogeology and Environmental Geology of Chinese Ministry- *Chemosphere.* 2009 Nov 7. ([DOI Direct Link](#))
- [Global gene expression in Staphylococcus aureus following exposure to alcohol.](#)
It was recently shown that, as in yeast, alcohols selectively increase the... 11th November, 2009
Department of Human Microbiology, Sackler School of Medicine, Tel Aviv- *Microb Pathog.* 2009 Nov 6. ([DOI Direct Link](#))
- [Development of a Recombinant Ureolytic Lactococcus Lactis for Urea Removal.](#)
Abstract Kidney failure is a common disease with high frequency.... 11th November, 2009
Key Laboratory of Bioactive Materials, Ministry of Education, College of- *Artif Cells Blood Substit Immobil Biotechnol.* 2009 Nov 10.
- [\[Effects of different water and fertilizer supply on cucumber soil nutrient content, enzyme activity, and microbial diversity\]](#)

With cucumber (Cucumis sativus L.) variety Jinyou 1 as test material, a... 11th November, 2009
College of Resource and Environment, Northwest A & F University, Yangling- Ying Yong Sheng Tai
Xue Bao. 2009 Jul;20(7):1678-84.

- [Paenibacillus prosopidis sp. nov., isolated from the nodules of Prosopis farcta in Tunisia.](#)
A bacterial strain designated PW21T was isolated from root nodules of... 10th November, 2009
IRNASA-CSIC;- Int J Syst Evol Microbiol. 2009 Nov 6. ([DOI Direct Link](#))
- [Toward the development of a stable, freeze-dried formulation of Helicobacter pylori killed whole cell vaccine adjuvanted with a novel mutant of Escherichia coli heat-labile toxin.](#)
No vaccine exists for the prevention of infection with the ubiquitous... 10th November, 2009
Emergent BioSolutions, 300 Professional Drive, Gaithersburg, MD 20879,- Vaccine. 2009 Nov 5. ([DOI Direct Link](#))
- [Rheumatoid arthritis, Proteus, anti-CCP antibodies and Karl Popper.](#)
Rheumatoid arthritis (RA) is a crippling joint disease affecting over 20... 10th November, 2009
King's College, Analytical Sciences Group, 150 Stamford Street, LONDON SE1- Autoimmun Rev. 2009
Nov 3. ([DOI Direct Link](#))
- [Characterization of NikR-responsive promoters of urease and metal transport genes of Helicobacter mustelae.](#)
The NikR protein is a nickel-responsive regulator, which in the gastric... 7th November, 2009
Department of Gastroenterology and Hepatology, Erasmus MC, University- Biometals. 2009 Nov 6. ([DOI Direct Link](#))
- [Upper gastrointestinal bleeding in children with haemophilia: a clinical significance of Helicobacter pylori infection.](#)
Summary. For patients with haemophilia, gastrointestinal (GI) bleeding is... 7th November, 2009
Department of Pediatrics, Kyungpook National University School of- Haemophilia. 2009 Nov 5. ([DOI Direct Link](#))
- [Accuracy of a new ultra fast rapid urease test to diagnose Helicobacter pylori infection in 1000 consecutive dyspeptic patients.](#)
Abstract Background: Rapid diagnostic tools for H pylori are important in... 7th November, 2009
Dept. of Internal Medicine and Gastroenterology, University of Bologna,- Aliment Pharmacol Ther. 2009
Nov 5. ([DOI Direct Link](#))
- [Antimicrobial Activity of Aminoreductone against Helicobacter pylori.](#)
Anti-Helicobacter pylori (H. pylori) effects of aminoreductone (AR), a... 7th November, 2009
Faculty of Agriculture, Kochi University, Monobe B-200, Nankoku 783-8502,- J Agric Food Chem. 2009
Nov 5. ([DOI Direct Link](#))
- [Validation of diagnostic tests for Helicobacter pylori with regard to grade of atrophic gastritis and/or intestinal metaplasia.](#)
BACKGROUND AND AIMS: To evaluate the validity of the biopsy-based tests... 6th November, 2009
Department of Internal Medicine and Liver Research Institute, Seoul- Helicobacter. 2009
Dec;14(6):512-9. ([DOI Direct Link](#))
- [Effect of humic deposit \(leonardite\) on degradation of semi-volatile and heavy hydrocarbons and soil quality in crude-oil-contaminated soil.](#)
In order to investigate the bioremedial potential of humic deposit... 6th November, 2009
Department of Soil Science, Agriculture Faculty of Ankara University,- Environ Monit Assess. 2009 Nov
4. ([DOI Direct Link](#))

Urease Clinical Trials:



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



Urease Patents:

- 7592003- [Regulation of toll-like receptors on stem cells](#)
- 7598031- [Method for the detection of gene transcripts in blood and uses thereof](#)
- 7598050- [Methods of identifying compounds that modulate IL-4 receptor-mediated IgE synthesis utilizing a chloride intracellular channel 1 protein](#)
- 7598208- [Filter cake degradation compositions and methods of use in subterranean operations](#)
- 7598273- [Inhibitors of the gastric H.sup.+, K.sup.+ -ATPase with enhanced therapeutic properties](#)
- 7601342- [Cell fusions and methods of making and using the same](#)
- 7601490- [Development of influenza A antivirals](#)
- 7604802- [Method of obtaining cellular immune responses from proteins](#)
- 7604950- [Methods for early detection of pregnancy in cows](#)
- 7604951- [Method for identifying compounds that modulate RXR associated processes with IgE production](#)
- 7608256- [Methods to increase transgene expression from bacterial-based delivery systems by co-expressing suppressors of the eukaryotic type I interferon response](#)
- 7595307- [Polysaccharide derivatives and uses in induction of an immune response](#)
- 7595159- [Prediction of Parkinson's disease using gene expression levels of peripheral blood samples](#)
- 7595152- [Detection of influenza virus](#)
- 7592010- [Albumin fusion proteins](#)
- 7592145- [Pin 1 as a marker for prostate cancer](#)
- 7592150- [Method for diagnosing diseases based on levels of anti-glycan antibodies](#)
- 7592153- [Method of reducing metal ions to elemental metal in the vicinity of an oxido-reductase enzyme](#)
- 7592165- [Process for the enzymatic preparation of an amide from a nitrile](#)
- 7592182- [Assay](#)
- 7592184- [Ammonia detection and measurement device](#)
- 7592453- [Fused quinoline derivative and use thereof](#)
- 7595058- [Chlamydia antigens and vaccine uses of the protein](#)
- 7595151- [Methods and compositions for diagnosis and treatment of influenza](#)
- 7608269- [Compositions and methods for treating cancer by modulating HER-2 and EGF receptors](#)
- 7608274- [Therapeutic processes and useful compositions therefor](#)
- 7612174- [Scavenger receptor](#)
- 7612175- [Scavenger receptor](#)
- 7612178- [Anti-IGF-1R antibodies and uses thereof](#)
- 7612180- [Humanized L243 antibodies](#)
- 7614135- [Method for making reservoir-based sensor device](#)
- 7615233- [Particulate construct comprising polyhydroxyalkanoate and method for producing it](#)
- 7615342- [ACTN3 genotype screen for athletic performance](#)
- 7615383- [Methods for treating neuropathy by agonist anti-trk-C monoclonal antibodies](#)
- 7615530- [Immunogenic compositions and methods of use](#)

- 7615610- [Modified trafficking patterns for arrestin and G-protein-coupled receptors via arrestin-ubiquitin chimera](#)
- 7612171- [DB, the receptor for leptin, nucleic acids encoding the receptor, and uses thereof](#)
- 7612038- [Biglycan and related therapeutics and methods of use](#)
- 7611866- [Selection of bacterial inner-membrane anchor polypeptides](#)
- 7608276- [Staphylococcus aureus proteins and nucleic acids](#)
- 7608395- [Systemic lupus erythematosus diagnostic assay](#)
- 7608413- [Kidney disease targets and uses thereof](#)
- 7608414- [Method for diagnosing and prognosing inflammatory bowel disease and crohn's disease](#)
- 7608450- [Nucleic acid and amino acid sequences relating to Staphylococcus epidermidis for diagnostics and therapeutics](#)
- 7608681- [Methods and compositions for prolonging elimination half-times of bioactive compounds](#)
- 7608724- [Antibacterial and/or antiprotozoal nitromidazole derivative compounds with urease inhibitor activity, process for preparing these compounds and use in pharmaceutical compositions and medicines](#)
- 7611703- [Kidney disease targets and uses thereof](#)
- 7611839- [Methods for diagnosing RCC and other solid tumors](#)
- 7611846- [Diagnostic methods involving human growth factor huXAG-1](#)
- 7615616- [Bioinformatic method for identifying surface-anchored proteins from gram-positive bacteria and proteins obtained thereby](#)

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