

Hemoglobin

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groups in green. From .Hemoglobin, also spelled haemoglobin and abbreviated Hb, is the iron-containing oxygen-transport metalloprotein in the red blood cells of the blood in vertebrates and other animals. In mammals the protein makes up about 97% of the red cell's dry content, and around 35% of the total content . Hemoglobin transports oxygen from the lungs or gills to the rest of the body, such as to the muscles, where it releases its load of oxygen. Hemoglobin also has a variety of other gas-transport and effect-modulation duties, which vary from species to species, and may be quite diverse in invertebrates. The name hemoglobin is the concatenation of heme and globin, reflecting the fact that each subunit of hemoglobin is a globular protein with an embedded heme group; each heme group contains an iron atom, and this is responsible for the binding of oxygen through ion-induced dipole forces. The most common type of hemoglobin in mammals contains four such subunits, each with one heme group. In humans, each heme group is able to bind one oxygen molecule, and thus, one hemoglobin molecule can bind four oxygen molecules. Mutations in the genes for the hemoglobin protein in humans result in a group of hereditary diseases termed the hemoglobinopathies, the best known of which is sickle-cell disease. Historically in human medicine, sickle-cell disease was the first disease to be understood in its mechanism of dysfunction, completely down to the molecular level. However, not all such globin-gene mutations result in illness. These mutations are formally recognized as hemoglobin variants rather than diseases. A separate set of diseases involves underproduction of normal and sometimes abnormal hemoglobins, through problems and mutations in globin gene regulation. These diseases, which also often produce anemia, are called thalassemias. Hemoglobin is synthesized in a complex series of steps. The heme portion is synthesized in a series of steps which occur in the mitochondria and the cytosol of the immature red blood cell, while the globin protein portions of the molecule are synthesized by ribosomes in the cytosol. Production of Hb continues in the cell throughout its early development from the proerythroblast to the reticulocyte in the bone marrow. At this point, the nucleus is lost in mammalian red blood cells, but not in birds and many other species. Even after the loss of the nucleus in mammals, residual ribosomal RNA allows further synthesis of Hb until the reticulocyte loses its RNA soon after entering the vasculature . The chemical empirical formula of the most common human hemoglobin is $C_{738}H_{1166}N_{812}O_{203}S_2Fe$, but as noted above, hemoglobins vary widely across species, and even slightly among subgroups of humans. ([From the Wikipedia article Hemoglobin](#) .)

Recent Publications on Hemoglobin:



- [New method for calcium on the ADVIA analyzer is free from interference of gadolinium-type contrast agents.](#)
Recently, Siemens Diagnostics released a new calcium assay (CA_2) based on... 21st November, 2009
Siemens Healthcare Diagnostics, Tarrytown, New York.- J Clin Lab Anal. 2009 Nov 19;23(6):399-403. (

[DOI Direct Link](#))

- [pHCR: a Parallel Haplotype Configuration Reduction algorithm for haplotype interaction analysis.](#)
Finding gene interaction models is one of the most important issues in... 21st November, 2009
[1] Department of Biochemistry, Faculty of Medicine Siriraj Hospital,- J Hum Genet. 2009 Nov 20. ([DOI Direct Link](#))
- [Increased Hemoglobin Levels in Patients With Early Onset Scoliosis: Prevalence and Effect of a Treatment With Vertical Expandable Prosthetic Titanium Rib \(VEPTR\).](#)
STUDY DESIGN.: The medical records of 138 subjects with Early Onset... 21st November, 2009
From the *Children's Hospital, Boston, MA; daggerChildren's Medical- Spine (Phila Pa 1976). 2009 Nov 1;34(23):2534-2536. ([DOI Direct Link](#))
- [Reproducibility of Performance Changes to Simulated Live High/Train Low Altitude.](#)
ABSTRACT: Elite athletes often undertake multiple altitude exposures... 21st November, 2009
1Department of Physiology, Australian Institute of Sport, Canberra,- Med Sci Sports Exerc. 2009 Nov 13. ([DOI Direct Link](#))
- [Six of 8 Hemoglobin A1c Point-of-Care Instruments Do Not Meet the General Accepted Analytical Performance Criteria.](#)
BACKGROUND: Hemoglobin A1c (HbA1c) point-of-care (POC) instruments are... 21st November, 2009
Department of Clinical Chemistry, Isala klinieken, Zwolle, The- Clin Chem. 2009 Nov 19. ([DOI Direct Link](#))
- [Few Point-of-Care Hemoglobin A1c Assay Methods Meet Clinical Needs.](#)
BACKGROUND: Hemoglobin A1c (HbA1c) point-of-care (POC) instruments are... 21st November, 2009
Department of Pathology, University of Virginia Medical School and Health- Clin Chem. 2009 Nov 19. ([DOI Direct Link](#))
- [Mucosal and serosal changes after gastric stapling determined by a new "real-time" surface tissue oxygenation probe: a pilot study.](#)
BACKGROUND: Although tissue ischemia at surgical anastomoses can cause... 21st November, 2009
Department of Surgery, Duke University Medical Center, Durham, North- Surg Obes Relat Dis. 2009 Oct 3. ([DOI Direct Link](#))
- [Single-Port Laparoscopic Salpingectomy for the Surgical Treatment of Ectopic Pregnancy.](#)
STUDY OBJECTIVE: To evaluate the feasibility of a single-port laparoscopic... 21st November, 2009
Department of Obstetrics and Gynecology, Gangnam CHA Medical Center, CHA- J Minim Invasive Gynecol. 2009 Nov 17. ([DOI Direct Link](#))
- [A prospective randomized comparison of vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy, and total laparoscopic hysterectomy in women with benign uterine disease.](#)
OBJECTIVES: To compare the clinical results of three minimally invasive... 21st November, 2009
Institute for the Care of Mother and Child, Podolske nabrezi 157, 147 00- Eur J Obstet Gynecol Reprod Biol. 2009 Nov 17. ([DOI Direct Link](#))
- [Anemia in Adults With Congenital Heart Disease Relates to Adverse Outcome.](#)
OBJECTIVES: To assess the relation of anemia in noncyanotic adults with... 21st November, 2009
Adult Congenital Heart Centre and Centre for Pulmonary Hypertension, Royal- J Am Coll Cardiol. 2009 Nov 24;54(22):2093-2100. ([DOI Direct Link](#))
- [Can patients at high-risk for significant colorectal neoplasms and having normal quantitative fecal occult blood test postpone elective colonoscopy?](#)
SUMMARY Background Common reasons for elective screening and surveillance... 21st November, 2009
Gastroenterology Dept., Rabin Medical Center, Beilinson Hospital, Petach- Aliment Pharmacol Ther. 2009 Nov 19. ([DOI Direct Link](#))
- [Endothelial dysfunction in hemodialysis patients with failed renal transplants.](#)
Background: Endothelial dysfunction (ED) is a common precursor and... 21st November, 2009
Department of Internal Medicine, Division of Nephrology, Istanbul Faculty- Clin Transplant. 2009 Nov 18. ([DOI Direct Link](#))
- [An Infrared Reflection-Absorption Spectroscopic \(IRRAS\) Study of the Interaction of Lipid A and Lipopolysaccharide Re with Endotoxin-Binding Proteins.](#)

Lipopolysaccharides (LPS, endotoxins) are main constituents of the outer... 21st November, 2009
Forschungszentrum Borstel, Leibniz-Zentrum für Medizin und- Med Chem. 2009 Nov 18.

- [Protein Conformational Dynamics of Homodimeric Hemoglobin Revealed by Combined Time-Resolved Spectroscopic Probes.](#)
Lipopolysaccharides (LPS, endotoxins) are main constituents of the outer... 20th November, 2009
Center for Time-Resolved Diffraction, Department of Chemistry, Graduate- Chemphyschem. 2009 Nov 18. ([DOI Direct Link](#))
- [A genome-wide association identified the common genetic variants influence disease severity in beta\(0\)-thalassemia/hemoglobin E.](#)
beta-Thalassemia/HbE disease is clinically variable. In searching for... 20th November, 2009
Thalassemia Research Center, Institute of Molecular Biosciences, Mahidol- Hum Genet. 2009 Nov 19. ([DOI Direct Link](#))

BioNews Results for Hemoglobin

- [Medical News: KineMed Receives An Investigator-Initiated Study Grant To Further Explore Mechanism\(s\) Of Action Associated With Welchol In Type 2 Diabetes Melli](#)
BioFind: Nov 21 2009 6:38AM Matching: hemoglobin
- [KineMed Receives An Investigator-Initiated Study Grant To Further Explore Mechanism\(s\) Of Action Associated Wi](#)
Medical News Today: Nov 21 2009 4:01AM Matching: hemoglobin
- [Hemoglobin levels associated with proliferative diabetic retinopathy, but differences noted by sex](#)
OSN Super Site: Nov 20 2009 3:39AM Matching: hemoglobin
- [Normalisation of total body iron load with very intensive combined chelation reverses cardiac and endocrine complications of thalassaemia major](#)
MDLinx: Nov 20 2009 12:13PM Matching: hemoglobin
- [Are Hemoglobin Levels Elevated in Type 1 Diabetes?](#)
MDLinx: Nov 20 2009 12:13PM Matching: hemoglobin
- [KineMed Receives an Investigator-Initiated Study Grant to Further Explore Mechanism\(s\) of Action Associated wi](#)
Freshnews.com: Nov 20 2009 1:24AM Matching: hemoglobin
- [New Research Into The Mechanisms Of Gene Regulation](#)
Red Orbit: Nov 20 2009 9:07PM Matching: hemoglobin
- [Scientists closer to unraveling the mechanisms of gene regulation](#)
News-Medical.Net: Nov 20 2009 7:33AM Matching: hemoglobin
- [New research into the mechanisms of gene regulation](#)
Science Daily: Nov 20 2009 6:32AM Matching: hemoglobin
- [US and European market for radiopharmaceuticals continues to gain momentum](#)
News-Medical.Net: Nov 20 2009 8:12AM Matching: hemoglobin
- [Hemoglobin levels predicted proliferative diabetic retinopathy incidence](#)
Endocrine Today: Nov 19 2009 2:48PM Matching: hemoglobin
- [KineMed Receives an Investigator-Initiated Study Grant to Further Explore Mechanism\(s\) of Action Associated wi](#)
Genetic Engineering News: Nov 19 2009 11:42PM Matching: hemoglobin
- [New research into the mechanisms of gene regulation](#)
Genetic Engineering News: Nov 19 2009 8:55PM Matching: hemoglobin
- [New research into the mechanisms of gene regulation](#)
Research & Development: Nov 19 2009 8:50PM Matching: hemoglobin
- [New research into the mechanisms of gene regulation](#)
EurekAlert!: Nov 19 2009 8:10PM Matching: hemoglobin



Hemoglobin Patents:

- 7611879- [27877, 18080, 14081, 32140, 50352, 16658, 14223, 16002, 50566, 65552 and 65577 molecules and uses therefor](#)
- 7613490- [Physiological stress detector device and system](#)
- 7613491- [Silicone based membranes for use in implantable glucose sensors](#)
- 7613502- [Optical bioinstrumentation for living body](#)
- 7613504- [Spectroscopic cross-channel method and apparatus for improved optical measurements of tissue](#)
- 7614997- [Implantable heart assist system and method of applying same](#)
- 7615007- [Analyte sensor](#)
- 7615158- [Method and device for the removal of partially protein bound substances](#)
- 7615212- [Compositions and methods for the systemic treatment of arthritis](#)
- 7615233- [Particulate construct comprising polyhydroxyalkanoate and method for producing it](#)
- 7615347- [Method for trapping nucleic acids using divalent metal ions](#)
- 7613489- [Optimized wavelength gap for improved StO₂ measurement](#)
- 7613488- [Apparatus and methods for compensation of blood volume effects on NIR spectroscopic measurements of blood analytes](#)
- 7612883- [Dynamic plasmonics-enabled signal enhancement, a device comprising the same, and a method using the same](#)
- 7611893- [Metal-binding therapeutic peptides](#)
- 7612033- [Methods for delivering compounds into a cell](#)
- 7612073- [Methods of administering tetrahydrobiopterin, associated compositions, and methods of measuring](#)
- 7612179- [antibodies binding to a C-terminal fragment of apolipoprotein E](#)
- 7612182- [Anti-IL-6 antibodies, compositions, methods and uses](#)
- 7612193- [Primers for exons of variants of RHCE and RHD genes](#)
- 7612254- [Manipulation of plant polysaccharide synthases](#)
- 7612255- [Transgenic plants for mitigating introgression of genetically engineered genetic traits](#)
- 7612256- [Isolated nucleic acid molecules encoding the Br2 P-glycoprotein of maize and methods of modifying growth in plants transformed therewith](#)
- 7612880- [Advanced polarization imaging method, apparatus, and computer program product for retinal imaging, liquid crystal testing, active remote sensing, and other applications](#)
- 7615528- [Methods for alleviating deleterious effects of 3-deoxyglucosone](#)
- 7615530- [Immunogenic compositions and methods of use](#)
- 7618816- [Metal-binding therapeutic peptides](#)
- 7618821- [Simulated blood components and methods](#)
- 7618938- [Treating cerebrovascular diseases with erythropoietin and granulocyte-colony stimulating factor jointly](#)
- 7618954- [Inositol pyrophosphates, and methods of use thereof](#)
- 7618984- [Sulfonamide compound](#)
- 7619006- [Conjugated psychotropic drugs and uses thereof](#)
- 7619064- [Bacillus thuringiensis gene with coleopteran activity](#)
- 7619133- [Polynucleotides and methods for making plants resistant to fungal pathogens](#)
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- 7620289- [Spring-loaded fiber coupler cover with cam profile](#)

- 7618810- [Metering strip and method for lateral flow assay devices](#)
- 7618806- [Methods and apparatus for mass spectral analysis of peptides and proteins](#)
- 7618777- [Composition and method for array hybridization](#)
- 7615533- [TPO peptide compounds for treatment of anemia](#)
- 7615568- [Antithrombotic ethers](#)
- 7615575- [Compounds for the treatment of metabolic disorders](#)
- 7616303- [Systems and methods for correcting optical reflectance measurements](#)
- 7617080- [Image enhancement by spatial linear deconvolution](#)
- 7617743- [Device and method for distributing measurement sample and cleaning tubes](#)
- 7618414- [Tissue treatment system](#)
- 7618657- [Active ingredients preparation and single compound purification from traditional Chinese herbal medicine Fructus Trichosanthis and uses thereof](#)
- 7618669- [Low-lactose partially hydrolyzed infant formula](#)
- 7618775- [Expanding the eukaryotic genetic code](#)
- 7620502- [Methods for identifying sets of oligonucleotides for use in an in vitro recombination procedure](#)

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