

Macronucleus

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A macronucleus is the larger type of nucleus in ciliates. Macronuclei are polyploid and undergo direct division without mitosis. It controls the non-reproductive cell functions such as metabolism. During conjugation, the macronucleus disintegrates, and a new macronucleus is formed by karyogamy of the micronuclei. The macronucleus contains hundreds of chromosomes, each present in ~50 copies. The macronucleus lacks a mechanism to precisely partition this complex genome equally during nuclear division; thus how the cell manages to maintain a balanced genome after generations of divisions is a mystery. Protozoan nucleus: the larger of two nuclei in most ciliate protozoans, involved in nonreproductive functions such as feeding and metabolism
Category:Organelles Macrophages



Recent Publications on Macronucleus:

- [Study of an RNA helicase implicates small RNA-noncoding RNA interactions in programmed DNA elimination in Tetrahymena.](#)
Tetrahymena eliminates micronuclear-limited sequences from the developing... 17th September, 2008
Institute of Molecular Biotechnology of the Austrian Academy of Sciences- Genes Dev. 2008 Aug 15;22(16):2228-41. ([DOI Direct Link](#))
- [Phylogenetic relationships among six species of Epistylis inferred from 18S-ITS1 sequences.](#)
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Institute of Hydrobiology, Chinese Academy of Sciences, 430072, Wuhan,- Sci China C Life Sci. 2002 Jun;45(3):280-8. ([DOI Direct Link](#))
- [The pathway to detangle a scrambled gene.](#)
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Institute of Cell Biology, University Witten/Herdecke, Witten, Germany.- PLoS ONE. 2008 Jun 4;3(6):e2330. ([DOI Direct Link](#))
- [Dynamic nuclear reorganization during genome remodeling of Tetrahymena.](#)
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- [Morphological characterization and intraspecific variation of Zoothamnium intermedium Precht, 1935 \(Ciliophora, Peritrichia\) attached to calanoid copepods in the Chesapeake Bay, USA.](#)
A redescription of Zoothamnium intermedium Precht, 1935, a peritrich... 7th August, 2008
Smithsonian Environmental Research Center, P. O. Box 28, Edgewater,- J Eukaryot Microbiol. 2008 Jul-Aug;55(4):297-305. ([DOI Direct Link](#))
- [Kiitricha minuta n. sp., a peculiar hypotrichous ciliate \(Ciliophora, Spirotrichea\) from the Yellow Sea.](#)
The morphology and infraciliature of a new ciliate, Kiitricha minuta n.... 6th August, 2008

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- [Tentative identification of the species of Balantidium from ostriches \(Struthio camelus\) as Balantidium coli-like by analysis of polymorphic DNA.](#)
*The characteristics of Balantidium from ostriches (Struthio camelus) are...*5th August, 2008
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- [Maternal noncoding transcripts antagonize the targeting of DNA elimination by scanRNAs in Paramecium tetraurelia.](#)
*The germline genome of ciliates is extensively rearranged during the...*5th August, 2008
Ecole Normale Superieure, Laboratoire de Genetique Moleculaire, Centre- Genes Dev. 2008 Jun 1;22(11):1501-12. ([DOI Direct Link](#))
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*Using the Escherichia coli-Tetrahymena pyriformis system, we revealed the...*23rd July, 2008
- Mikrobiologija. 2008 Mar-Apr;77(2):219-25.
- [Nuclear localization of eukaryotic class II release factor \(eRF3\): implication for the multifunction of eRF3 in ciliates Euplotes cell.](#)
*Class II polypeptide release factor (eRF3), a ribosome and eRF1-dependent...*28th June, 2008
Institute of Biotechnology, Key Laboratory of Chemical Biology and- Cell Biol Int. 2008 Mar;32(3):353-7. Epub 2008 Jan 9. ([DOI Direct Link](#))
- [Developmentally programmed DNA splicing in Paramecium reveals short-distance crosstalk between DNA cleavage sites.](#)
*Somatic genome assembly in the ciliate Paramecium involves the precise...*25th June, 2008
Ecole Normale Superieure, Laboratoire de Genetique Moleculaire, 75005- Nucleic Acids Res. 2008 Jun;36(10):3244-51. Epub 2008 Apr 17. ([DOI Direct Link](#))
- [Cell cycle-dependent regulation of telomere tethering in the nucleus.](#)
*It is well established that telomeres are tethered in the eukaryotic...*29th May, 2008
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- [Analysis of sequence variability in the macronuclear DNA of Paramecium tetraurelia: a somatic view of the germline.](#)
*Ciliates are the only unicellular eukaryotes known to separate germinal...*17th May, 2008
Universite de Lyon, Universite Lyon 1, CNRS, UMR 5558, Laboratoire de- Genome Res. 2008 Apr;18(4):585-96. Epub 2008 Feb 6. ([DOI Direct Link](#))
- [Fate of the 63-kDa periplasmic protein of the infectious form of the endonuclear symbiotic bacterium Holospora obtusa during the infection process.](#)
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Department of Natural Science and Symbiosis, Graduate School of Science- FEMS Microbiol Lett. 2008 Mar;280(1):21-7. Epub 2008 Jan 3. ([DOI Direct Link](#))
- [Molecular biology. RNA rules.](#)
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- Nature. 2008 Jan 10;451(7175):131-2. ([DOI Direct Link](#))

Macronucleus Patents:



- 6977325- [Plant promoter sequences and methods of use for same](#)
- 7081518- [Anti-mesothelin antibodies having high binding affinity](#)
- 7091398- [Isolated sucrose sythase polynucleotides and uses thereof](#)
- 7105324- [Nucleic acid isolated from Tetrahymena which codes for a triterpenoid cyclase, its production, and use](#)
- 7109390- [Alternative splicing factors polynucleotides polypeptides and uses therof](#)
- 7129332- [Anti-EGFRvIII scFvs with improved cytotoxicity and yield, immunotoxins based thereon, and methods of use thereof](#)
- 7135623- [Nucleic acid which is obtained from Tetrahymena and which codes for a delta-6-desaturase, the production thereof and use](#)
- 7141245- [Process for preparation of a microbial agent](#)
- 7148406- [Genes encoding enzymes for lignin biosynthesis and uses thereof](#)
- 7160988- [Altering protein functional properties through terminal fusions](#)
- 7166769- [Antimicrobial peptides and methods of use](#)
- 7070929- [Genetic markers for improved disease resistance in animals \(BPI\)](#)
- 7060480- [MRE11 orthologue and uses thereof](#)
- 7057020- [Isolated RuvB polypeptides](#)
- 6979725- [Rad2/FEN-1 orthologues and uses thereof](#)
- 6987169- [Small conductance, calcium-activated potassium channels \(SK 3\)](#)
- 6987212- [Amino polyol amine oxidase polynucleotides and related polypeptides and methods of use](#)
- 7001743- [Expansin polynucleotides, related polypeptides and methods of use](#)
- 7005262- [Methods for detecting nucleic acids encoding human telomerase reverse transcriptase](#)
- 7026156- [Diagnostic and protective antigen gene sequences of ichthyophthirius](#)
- 7026451- [Small and intermediate conductance, calcium-activated potassium channels and uses thereof](#)
- 7034117- [RAD51 polypeptides and uses thereof](#)
- 7056513- [Telomerase](#)
- 7056714- [Carboxylic acid reductase polypeptide, nucleotide sequence encoding same and methods of use](#)
- 7179955- [Maize cellulose synthases genes and uses thereof](#)
- 7199234- [Regulatory segments of the human gene for telomerase reverse transcriptase](#)
- 7312377- [Maize cellulose synthase encoding nucleic acids and uses thereof](#)
- 7326568- [Recombinant expression of heterologous nucleic acids in protozoa](#)
- 7355012- [Mutated anti-CD22 antibodies with increased affinity to CD22-expressing leukemia cells](#)
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- 7393999- [Antimicrobial peptides and methods of use](#)
- 7399827- [Page-4, an x-linked gage-like gene expressed in normal and neoplastic prostate, testis and uterus, and uses therefor](#)
- 7404954- [Methods of targeting agents to cells expressing the polymeric immunoglobulin receptor](#)
- 7413864- [Treating cancer using a telomerase vaccine](#)
- 7307149- [Maize cellulose synthases and uses thereof](#)
- 7285702- [Maize cellulose encoding nucleic acids and uses thereof](#)
- 7285639- [Antibody to telomerase reverse transcriptase](#)
- 7202396- [Rad3 orthologues and uses therof](#)
- 7205453- [Crop plant cystatin proteinase inhibitors encoding nucleic acids and methods of use](#)
- 7214512- [Genomic mammary Amyloid a sequence](#)
- 7214852- [Maize cellulose synthases encoding nucleic acids and uses thereof](#)
- 7214857- [No-apical meristem proteins, polynucleotides and methods of use for same](#)
- 7223550- [Biosensor for defecting chemical agents](#)
- 7241934- [Amino polyol amine oxidase polynucleotides and related polypeptides and methods of use](#)
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- 7262288- [Nucleic acids encoding human telomerase reverse transcriptase and related homologs](#)
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Send comments and feedback to:

Peter Barfoot Managing Director, BioPortfolio Ltd.

UK Tel: (+44) 1300 321501

USA Voicemail and Fax: (+1) 415 680 2472

[Peter Barfoot peter.barfoot@bioportfolio.com](mailto:peter.barfoot@bioportfolio.com)

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