

## Zytoskelett, cytoskeleton

Das **Zytoskelett** (altgriechisch κύτος kýtōs – „Zelle“) (auch Cytoskelett oder Zellskelett, Cytobones, Cytonerves (De Duve) [http://www.erlebnishaft.de/selbst\\_muster\\_nano.pdf](http://www.erlebnishaft.de/selbst_muster_nano.pdf) <http://www.erlebnishaft.de/symbiogenese.pdf>) ist ein dynamisches, aus Proteinen bestehendes Netzwerk im Zell-Plasma.

Quelle: <http://de.wikipedia.org/wiki/Zytoskelett> <http://en.wikipedia.org/wiki/Cytoskeleton>

The **cytoskeleton** (ancient Greek κύτος kytos - "cell") (also cytoskeleton or cytoskeleton, Cytobones, Cytonerves (De Duve) [http://www.erlebnishaft.de/selbst\\_muster\\_nano.pdf](http://www.erlebnishaft.de/selbst_muster_nano.pdf) <http://www.erlebnishaft.de/symbiogenese.pdf>) is a dynamic network consisting of proteins in the cell plasma.

- ➔ Kopfhirn, Bauchhirn, Intelligenz der körpereigenen, nichtneuronalen Zellen, Intelligenz der Bakterien, Pilze, Protozoen und Würmer.
- ➔ Head brain, gut brain, the intelligence the own non-euro-neuronal cells, the intelligence of bacteria, fungi, protozoa and nematoda.

**Cytoskeletal defects** [http://en.wikipedia.org/wiki/Category:Cytoskeletal\\_defects](http://en.wikipedia.org/wiki/Category:Cytoskeletal_defects)

**Defects of cell structure** [http://en.wikipedia.org/wiki/Category:Defects\\_of\\_cell\\_structure](http://en.wikipedia.org/wiki/Category:Defects_of_cell_structure)

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„Leben ist nur ein Elektron auf der Suche nach einem Ruheplatz.  
Life is but an electron looking for a place to rest“. (Albert Szent- Giörgyi).

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**« An important function of microtubules is to move cellular structures such as chromosomes, mitotic spindles and other organelles around inside cells. This is achieved by attaching the ends of microtubules**

to cellular structures; as the microtubules grow and shrink, the structures are pushed or pulled around the cell. ... It is now clear that there are at least three properties of a microtubule end: it has alternate structures; it has a biochemical transition defined by GTP hydrolysis; and it forms a distinct target for the binding of specific proteins. These different properties can be unified by thinking of the microtubule as a molecular machine, which switches between growing and shrinking modes. Each mode is associated with a specific end structure on which end-binding proteins can assemble to modulate dynamics and couple the dynamic properties of microtubules to the movement of cellular structures. »

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„**ABSTRACT** Recently, electron microscopic studies on the eubacteria *Mycoplasma pneumoniae*, *Thermoanaerobacterium* sp., and *Escherichia coli* have revealed the existence of cytoskeletal elements so far unknown in prokaryotes. ... A feature that is common to both bacteria and to *Thermoanaerobacterium* sp. appears to be that the lining and the fibrils crossing the cytoplasm contain a high number of copies of the bacterial elongation factor Tu (EF-Tu). This indicates that this protein may play an important role as a structural element in bacterial cytoskeletons. This notion was supported by experiments in which the cytoskeleton in *E. coli* was destabilized by induced expression of truncated EF-Tu, with the consequence of cell lysis, and by the finding that in vitro polymerization of monomeric EF-Tu into protofilaments was hindered in a mixture of full-size EF-Tu and truncated EF-Tu consisting of domain 3 only. **Current research and developmental efforts are aimed at the design of a new class of antibacterial drugs, acting by destabilization of the EF-Tu-containing bacterial cytoskeleton, and of an innovative mode of inducible lysis of recombinant bacteria by controlled destabilization of the EF-Tu-containing cytoskeleton**“.

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« Here, we focus on structures at the plasma membrane, including both sheet-like protrusive structures (such as lamellipodia and ruffles) and finger-like protrusions (such as filopodia and microvilli) ».

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« Intermediate filaments (IFs) constitute a major structural element of animal cells. They build two distinct systems, one in the nucleus and one in the cytoplasm. In both cases, their major function is assumed to be that of a mechanical stress absorber and an integrating device for the entire cytoskeleton. In line with this, recent disease mutations in human IF proteins indicate that the nanomechanical properties of cell-type-specific IFs are central to the pathogenesis of diseases as diverse as muscular dystrophy and premature ageing. However, the analysis of these various diseases suggests that IFs also have an important role in cell-type-specific physiological functions. »

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„Homologs of eukaryotic actin, tubulin, and intermediate filaments were found in bacteria; **cytoskeletal proteins not closely or not at all related to any of these major cytoskeletal proteins** were discovered in a number of bacteria such as Mycoplasmas, Spiroplasmas, Spirochetes, Treponema, Caulobacter. A structural role for bacterial elongation factor Tu was indicated. On the basis of this new thinking, new approaches in biotechnology and new drugs are on the way.”

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- ➔ **Symbiogenese** <http://www.erlebnishaft.de/symbiogenese.pdf>
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- ➔ **Warum Borrelien infektiös bleiben trotz intensiver antibiotischer Behandlung** <http://www.xerlebnishaft.de/escape.pdf>
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Bernt - Dieter Huismans, Letzte Revision Januar 2018 [www.Huismans.click](http://www.Huismans.click)



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