Mitochondrien, Midichloria mitochondrii, Rickettsia
Gruppe α-Proteobakterien, Ordnung Rickettsiales, Gattung Midichloria,
group α-proteobacteria, genus Midichloria

Mitochondrien http://www.biokurs.de/skripten/bs11-57.htm
Zellatmung http://www.biokurs.de/skripten/12/bs12-23.htm

A. Mitochondria dysfunktion (The more the mitochondrial dysfunction the stronger the inflammation)

B. Mitochondrial diseases http://en.wikipedia.org/wiki/Category:Mitochondrial_diseases
Finsterer J. (2004) **Mitochondriopathies.** Eur J Neurol. 11(3), 163-86. http://www.ncbi.nlm.nih.gov/pubmed/15009163

Mitochondrial diseases - Biochemistry
"A special feature of mitochondria is their dual genetic control of mitochondrial DNA (mtDNA) and nuclear DNA (nDNA). 99% of all structural and functional proteins of the mitochondrion and the most proteins necessary for transcription, translation and replication of the mitochondrial genome are encoded by the nuclear DNA (nDNA). Only 1% of the proteins are encoded in the mitochondrial DNA (mtDNA)".
Source: http://www.neuro.med.tu-dresden.de/mitolab/index.php?option=com_content&task=view&id=13&Itemid=30

The mineralocorticoid aldosterone synthase enzymes and the 11 betahydroxylase are localized in mitochondria, as well as the cholesterol side-chain cleavage enzyme
Source: http://en.wikipedia.org/wiki/File:Steroidogenesis.svg

Diagnostics: TNF alpha, Interferon gamma inducible protein 10 (IP10), Histamin, IL6, IL8, lactate / pyruvate, methylmalonic acid, PH status, ketone bodies in urine or serum, **intrazellular ATP**, **Malondialdehyd-LDL**, fasting blood glucose, homocysteine, arginine, vitamin D3

Drug therapy: CoQ10, L-Carnitine,Vitamin B1, B6, B12, Folic acid, Vitamin D, Vitamin E, Magnesium, Fatty Acids, Glutathione, N-Acetylcysteine, Selenium, Polyphenols, Curcumin, antichemokin, therapy http://www.kabilahsystems.de/antizyt-chem.pdf

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A. Mitochondrien-Dysfunktion (Je stärker die Mitochondrien-Dysfunktion desto stärker die Entzündung) Die **Bestimmung des intrazellulären ATP** als Marker einer mitochondrialen Dysfunktion. http://www.daszahnzentrum.de/pdf/Intrazellulaerer%20ATP.pdf

B. Mitochondriopathie http://de.wikipedia.org/wiki/Mitochondriopathie
Mitochondriale Myopathien Licht- und ev. Elektronenmikroskopie, Messungen v. Enzymaktivitäten, genetische Untersuchungen. http://www.dgm.org/muskelerkrankungen/mitochondriale-myopathien

Krankheitsbilder Mitochondriopathien – Biochemie
„Eine Besonderheit der Mitochondrien ist ihre duale genetische Kontrolle durch mitochondriale DNA (mtDNA) und nukleäre DNA (nDNA). 99% aller strukturellen und funktionellen Proteine des Mitochondriums sowie die meisten für Transkription, Translation und Replikation des mitochondrialen Genoms erforderlichen Proteine werden durch die nukleäre DNA (nDNA) kodiert. Nur 1% der Proteine ist in der mitochondrialen DNA (mtDNA) verschlüsselt." Quelle:
http://www.neuro.med.tu-dresden.de/mitolab/index.php?option=com_content&task=view&id=13&Itemid=30

Die Mineralocorticoid-Enzyme Aldosteronsynthase und die 11 betahydroxylase sind in Mitochondrien lokalisiert, ebenso das Cholesterol side-chain cleavage enzyme
Quelle: http://en.wikipedia.org/wiki/File:Steroidogenesis.svg

Diagnostik: TNF alpha, Interferon gamma inducible protein 10 (IP10), Histamin, IL6, IL8, Laktat /Pyruvat, Methylmalonsäure, PH-Status, Ketonkörper im Urin oder Serum, **intrazelluläres ATP**, **Malondialdehyd-LDL**, Blutzucker, Homocystein, Arginin, Vitamin D3

Medikamententherapie: CoQ10, L-Carnitin,Vitamin B1, B6, B12, Folic acid, Vitamin D, Vitamin E, Magnesium, Fettsäuren, Glutathion, N-Acetylcystein, Selen, Polyphenole, Curcumin, Antizytokine, Therapie http://www.kabilahsystems.de/antizyt-chem.pdf

"Die **Medizin des 21. Jahrhunderts** wird eine Mitochondrien – Filamenten – Mizellen * – Beziehungs * – Medizin sein oder sie wird nicht sein" (Huismans BD 2014).
http://www.xerlebnishaft.de/mitochondrien.pdf -> Midichloria mitochondrii

"The **medicine of the 21st century** will be a medicine of mitochondria, filaments, micelles * and relationships *, or will not be viable" (Huismans BD 2014).
http://www.xerlebnishaft.de/mitochondrien.pdf -> Midichloria mitochondrii

Persistenz des Pathogens -> Chronische Entzündung -> Mitochondrien Dysfunktion

Gefahren Modell ^ |
|_____v

Persistence of the pathogen -> Chronic Inflammation -> mitochondrial dysfunction

Danger model ^ |
|_____v

➔ **Atmung und Gärung im Krebsgeschehen. Respiration and fermentation management in cancer** http://www.xerlebnishaft.de/krebsstammzelltherapie.pdf

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„Anticonvulsants, Psychotropics, Cholesterol Medications, Analgesics and Anti-inflammatories, Antiobiotics Antibiotics, (specifically tetracycline, minocycline, chloramphenicol, and aminoglycosides), can be harmful to the mitochondria because they inhibit mtDNA translation and protein synthesis. They can cause hearing loss as well as cardiac and renal toxicity. - See more at: http://www.mitoaction.org/blog/medication-exposures-mitochondrial-toxicity#sthash.Wqb0nicT.dpuf , Steroids, Anesthesia, Surgery, Environmental Agents Tobacco smoke (primary or secondary inhalation) and alcohol are both potentially toxic for patients with mitochondrial diseases. Other environmental factors may not be as controllable, but patients should be aware of their toxicity. These include rotenone (chemical used in insecticides and pesticides) and fat soluble chemicals with benzene rings such as hair dye and paint fumes. Ketogenic diet, Endogenous Stress Related Hormones, CoEnzyme Q10 can become an oxygen radical and cause trouble if the dosage is too high. The most common dosage is 10 - 20 mg/kg/day.“

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„Der medikationsorientierte Einsatz von mitotropen Mikro-nährstoffen wie Coenzym Q10 und L-Carnitin kann nicht nur das Risiko für unerwünschte Arzneimittelwirkungen verringern und die Lebensqualität der behandelten Patienten verbessern, sondern auch das pharmakologische, immunologische und metabolische Wirkprofil eines Arzneimittels erweitern. Darüber hinaus beinhaltet eine auf die Medikation ausgerichtete Supplementierung von Vitaminen und anderen Mikronährstoffen ein hohes Potenzial, Arznei- und Therapiekosten im Gesundheitssystem einzusparen.“

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„Here we show that moderate mtDNA stress elicited by TFAM deficiency engages cytosolic antiviral signalling to enhance the expression of a subset of interferon-stimulated genes. Mechanistically, we find that aberrant mtDNA packaging promotes escape of mtDNA into the cytosol, where it engages the DNA sensor cGAS (also known as MB21D1) and promotes STING (also known as TMEM173)-IRF3-dependent signalling to elevate interferon-stimulated gene expression, potentiate type I interferon responses and confer broad viral resistance. Furthermore, we demonstrate that herpesviruses induce mtDNA stress, which enhances antiviral signalling and type I interferon responses during infection. Our results further demonstrate that mitochondria are central participants in innate immunity, identify mtDNA stress as a cell-intrinsic trigger of antiviral signalling and suggest that cellular monitoring of mtDNA homeostasis cooperates with canonical virus sensing mechanisms to fully engage antiviral innate immunity."

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Midichloria mitochondrii

Midichloria Bakterien parasitieren Mitochondrien. Sie verwenden sie als Energiequelle [sie **fressen ATP**] und sie verwenden sie als Vermehrungsmedium.

Midichloria bacteria seem to consume the mitochondria they parasite, possibly using them as a source of energy and/or molecules to multiply. Quelle, source : http://en.wikipedia.org/wiki/Midichloria

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"Most strikingly, pre-mitochondrion was predicted to possess a plastid/parasite type of ATP/ADP translocase that imports ATP from the host, which posits pre-mitochondrion as an energy parasite that directly contrasts with the current role of mitochondria as the cell's energy producer. In addition, pre-mitochondrion was predicted to encode a large number of flagellar genes and several cytochrome oxidases functioning under low oxygen level, strongly supporting the previous finding that the mitochondrial ancestor was likely motile and capable of oxidative phosphorylation under microoxic condition."

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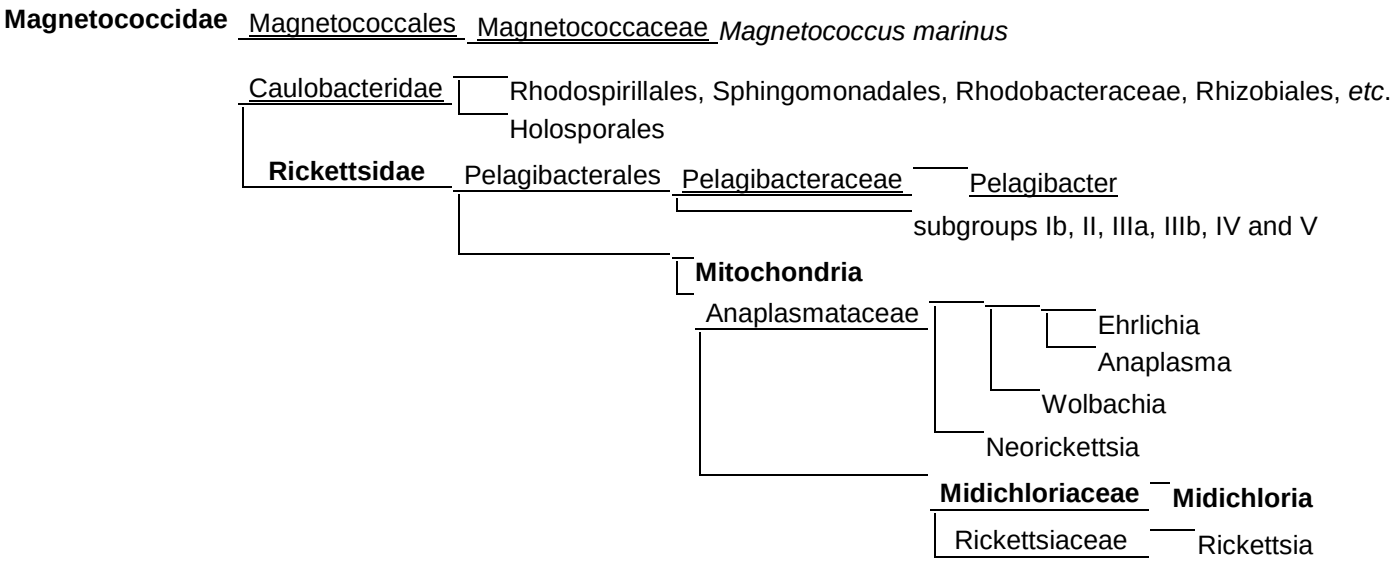
Phylogeny of Rickettsiales



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