



BLUMENBACH LECTURE

VORTRAGSREIHE DES
JOHANN-FRIEDRICH-BLUMENBACH-INSTITUTS
FÜR ZOOLOGIE UND ANTHROPOLOGIE

INVESTIGATION OF ASGARD ARCHAEA SHEDS LIGHT ON THE ORIGIN OF EUKARYOTES

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The origin of the eukaryotic cell remains one of the most contentious puzzles in evolutionary biology. After the recognition of Archaea as a domain of life distinct from Bacteria, it has become increasingly clear that eukaryotic cells represented hybrid organisms: they exhibit a mixture of archaeal and bacterial features, as well as a vast number of eukaryotic-specific ones. Although it is clear that mitochondrial organelles descend from endosymbiotic alphaproteobacteria, the nature of the host lineage has been hotly debated. However, in the last few years, phylogenetic analyses have suggested that a recently discovered superphylum, the Asgard archaea, represents the closest archaeal relatives of eukaryotes.

Here I will provide a brief historical assessment of our understanding of the tree of life. I will examine how recent results from the field of archaeal research allowed us to tackle some of the main questions regarding the origin of eukaryotes, and which issues remain to be investigated. In a second part, I will present some of our ongoing investigations into novel lineages of Asgard archaea using phylogenetics and comparative genomics, and how this has provided further insights into the process of eukaryogenesis.

**Large Lecture Hall MN34
Albrecht-von-Haller-Institute
Untere Karspüle 2**

**Thursday
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17:15**