Graduate Schools
Infection Immunity and Cancer, UniGe & UniL: CUS
Biology & Medicine, CMU

# Seminar in Microbiology

## Monday, October 19, 2015

## Salle de séminaire 7172, CMU

## 11:30 – 12:30


## Dirk Schüler

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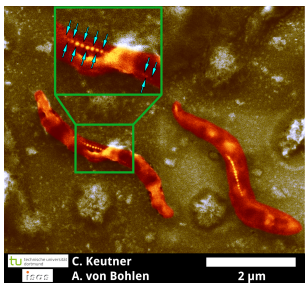
# Molecular genetics and cell biology of magnetosome biosynthesis in magnetotactic bacteria

Certain bacteria, such as *Magnetospirillum gryphiswaldense* are capable to synthetize ferromagnetic crystals, a process called biomeineralization, within devoted membrane structures, the magnetosomes. These vesicules are then aligned along an actin-like filament to form a chain that orients in the geomagnetic field. The formation of magnetosomes by bacteria represents a real challenge to cell biology (organelle formation), polarity (arrangement of magnetosomes within the bacterium), genetics (control of biomineralisation). These structures are also of great interest to nanotechnology fields.





Kolinko et al., 2015. Single-cell genomics of uncultivated deep-branching magnetotactic bacteria reveals a conserved set of magnetosome genes. Environ Microbiol. doi: 10.1111/1462-2920.12907.

Borg et al., 2015. An intracellular nanotrap redirects proteins and organelles in live bacteria. MBio. 6. pii: e02117-14.

Popp et al. 2014. Polarity of bacterial magnetotaxis is controlled by aerotaxis through a common sensory pathway. Nat Commun. 5:5398.

Kolinko et al., 2014. Single-cell genomics reveals potential for magnetite and greigite biomineralization in an uncultivated multicellular magnetotactic prokaryote. Environ Microbiol Rep. 6:524-31

Körnig et al., 2014. Probing the mechanical properties of magnetosome chains in living magnetotactic bacteria. Nano Lett. 14:4653-9.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Sandwiches will be offered after the seminar