

## Research interest

I work on proteins/enzymes secreted by ectomycorrhizal fungi and related transcriptomes and genes. My work focuses mainly on the ability of the fungi to trap carbon in the soil in association with the plants, in other word, C-sequestration. From the basic meaning of mycorrhiza, there is formation of extensive hyphal web between the plants root cells and the fungal mycelia. This network allows the fungus to derive photosynthetically produced sugars from the host and in return transfer nitrogen and phosphorous to the plant. Almost 20% of the carbon assimilated by the ectomycorrhizal plants is estimated to be allocated to their mycorrhizal fungi (Högberg *et al.* 2001; Leake *et al.* 2004), whereas ~70% of plants N and P are absorbed via the ectomycorrhizal fungi colonizing the roots (Brandes *et al.* 1998).

We are focusing on three hypothesis of carbon trapping by the ectomycorrhizal fungus while it acts as a decomposer of organic nutrients. Mycorrhizal enzyme and recalcitrant proteins secretion and development of hard-to-digest cell wall are the focus of the three hypotheses. Our system is the ECM fungi *Paxillus involutus*.



*Paxillus involutus* here is shown forming mycorrhiza with a pine (*Pinus*) seedling