

**Transcriptome of *Tetracapsuloides bryosalmonae*, the etiological agent of proliferative kidney disease in salmonids**

*Tetracapsuloides bryosalmonae* is a myxozoan parasite responsible for causing proliferative kidney disease (PKD) in salmonids in Europe and North America (Hedrick et al., 1993). PKD involves kidney and spleen enlargement and anaemia in affected fish (Feist & Bucke, 1987). This disease is the suspected cause for declines in wild salmonid populations (Burkhardt-Holm et al. 2005; Sterud et al. 2007) and is considered an emerging disease related to anthropogenic changes such as eutrophication and global warming (Okamura et al. 2011). Due to its increasing significance in recent times, this pathogen has attracted considerable research focus. Studies concerning its taxonomy, morphology, pathology in fish and bryozoans host and also immune response of fish have been undertaken. Research has also focused on elucidating its life cycle in both fish and bryozoans host. The infection process is initiated once the spores released from bryozoan hosts enter the fish host through gills (Morris et al. 2000, Holzer et al. 2006, Grabner & El-Matbouli 2010). Developmental stages of PKD have been observed in blood vessels and blood smears from infected rainbow trout at 4 weeks after infection (Kent & Hedrick, 1986). Kumar et al. (2015) identified 6 parasite proteins mainly structural and enzymatic and 40 different host proteins from kidney of infected brown trout using ESI-MS (electrospray ionization) analysis. Despite these advances, information regarding virulent genes of *T. bryosalmonae* is limited, also no effective control and treatment of this parasite is available till date.

Transcriptomics is a novel high-throughput tool, which is widely being used for studying a specific developmental stage or physiological condition. Transcriptome based studies have become instrumental in exploring many aspects of human and animal host, pathogen as well as pathobiology of disease. Similar studies in fish parasitology hold promise for advancing our knowledge and consequently leading to development of therapeutic measures. In this backdrop, the aim of the current project is to gain deeper understanding of *T. bryosalmonae* biology and pathogenesis through transcriptomic analysis.