2.6 Aim of the study

L. pneumophila possesses several lipolytic enzyme activities affecting phospholipids, namely phospholipase A, lysophospholipase A, and glycerophospholipid:cholesterol acyltransferase activities (72, 73, 75). However, so far only one *L. pneumophila* enzyme that degrades phospholipids has been characterized which is the secreted LPLA, PlaA (75). The aim of this study was to further identify proteins which cause the phospholipase A and lysophospholipase A activities of *L. pneumophila*. The release of fatty acids from phospholipids and lysophospholipids which were detected by a photometrical assay served as an indicator for PLA and LPLA activities. Of special interest was to identify and characterize PLAs and LPLAs which are secreted by the bacterium as they are considered to be involved in the establishment of *Legionella*-mediated pneumonia. Therefore, a second aspect of this study was to assess the importance of the newly identified PLA/LPLA candidate proteins in *L. pneumophila* virulence by generating *L. pneumophila* knockout mutants of the corresponding gene which were then tested for intracellular growth. Two host cell model systems were employed for the assessment of *L. pneumophila* virulence. The first host model was *Acanthamoeba castellanii* representing the protozoan host and the second type of cells were chemically differentiated U937 macrophage-like cells representing the human macrophage host.