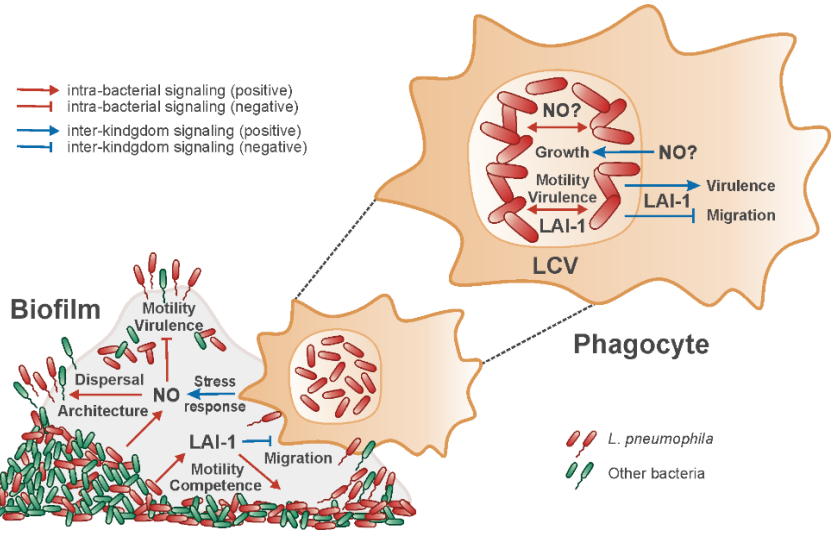
Cell-cell communication of *L. pneumophila*

L. pneumophila employs small signaling molecules for cell-cell communication (**Fig. 1**). The organic signaling molecule *Legionella* autoinducer-1 (LAI-1, 3-hydroxypentadecane-4-one) is produced and detected by the *Legionella* quorum sensing (Lqs) system and, jointly with the inorganic radical gas nitric oxide (NO), promotes intra-bacterial and inter-kingdom signaling (1-3). The Lqs system and LAI-1 regulate the virulence, motility, and physiology of *L. pneumophila*, as well as eukaryotic cell migration and intracellular bacterial replication (4-6). On the other hand, NO regulates *L. pneumophila* virulence and motility, as well as biofilm architecture and dispersal (7). The Lqs system and NO signaling are linked by the pleiotropic transcription factor LvbR (8). Current projects aim at elucidating eukaryotic factors implicated in small molecule inter-kingdom signaling of *L. pneumophila*.

Fig. 1. *L. pneumophila* intra-bacterial and inter-kingdom signaling by LAI-1 and NO. In biofilms and withing phagocytes, the Lqs system and the signaling molecule LAI-1, as well as NO promote intra-bacterial and inter-kingdom signaling. LAI-1 regulates the virulence, motility, and physiology of *L. pneumophila* as well as host cell migration. NO regulates *L. pneumophila* virulence and motility, as well as biofilm architecture and dispersal.



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