

세미나 초록

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발표 주제	Protein Quality Control Beyond the Inner Membrane of Bacterial Cells
발표 내용	<p>Proteins are essential for the survival of all living organisms, as their unique structures are intrinsically linked to their functions. While protein folding can occur spontaneously, larger and more complex proteins often encounter challenges in achieving correct conformations. Environmental changes, such as heat and acidity, can lead to protein denaturation, causing functional loss and increased cellular toxicity. To counteract these challenges, cells utilize molecular chaperone systems that facilitate proper protein folding and provide protection against stress. Molecular chaperones were initially identified as heat-induced proteins and are conserved across all organisms, from bacteria to humans. In the cytosol, stable pH levels and the presence of ATP allow cytosolic chaperones, such as DnaK and GroEL, to function using ATP as an energy source. However, in Gram-negative bacteria, the periplasmic space between the inner and outer membranes lacks ATP and is directly exposed to external environmental changes due to the semi-permeable nature of the outer membrane. To preserve the integrity of numerous proteins in the periplasm, diverse chaperones is involved. This presentation will introduce newly identified periplasmic chaperones in <i>Escherichia coli</i> and <i>Pseudomonas aeruginosa</i> and present their detailed mechanisms of action.</p>