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Speaker's Abstract

**On a quest for novel antimicrobial targets: Na⁺-NQR
(Na⁺-translocating NADH:ubiquinone oxidoreductase)**

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The recent breakthrough in structural studies on Na⁺-translocating NADH:ubiquinone oxidoreductase (Na⁺-NQR) from the human pathogen *Vibrio cholerae* (Steuber J et al. 2014) opens exciting new perspectives for the systematic design of inhibitors for this unique enzyme, which acts as a major Na⁺ pump in numerous aerobic pathogens. Widespread distribution of Na⁺-NQR among pathogenic species, its key role in energy metabolism, its relation to virulence in different species as well as its absence in eukaryotic cells makes this enzyme highly attractive as a target for prospective antibiotics.

In this talk, selected biochemical, physiological, and pharmacological aspects of Na⁺-NQR will be discussed to assess its “target potential” for drug development. A new line of narrowly targeted furanone inhibitors of NQR will be presented as a molecular platform for the development of «individually tailored» anti-NQR remedies. The most recent experimental data on the anti-microbial efficacy of the designed Na⁺-NQR inhibitors will be considered as well.

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