BIOLOGICAL CHEMISTRY

Founded in 1877 by Felix Hoppe-Seyler as
Zeitschrift für Physiologische Chemie

Felix Hoppe-Seyler (1825–1895) was a pioneer of biochemistry, remembered not only for his discovery of hemoglobin and his contributions to the chemical characterization of many other biological compounds and processes but also for having been the mentor of Friedrich Miescher and Albrecht Kossel. In his preface to the first issue of ***Zeitschrift für Physiologische Chemie,*** Felix Hoppe-Seyler coined the term ***Biochemistry*** ('Biochemie') for the then newly emerging discipline.

Biological Chemistry is associated with the Gesellschaft für Biochemie und Molekularbiologie e.V. (GBM)

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COVER ILLUSTRATION
Investigation of protein-protein/protein-DNA interactions and protein dynamics by site-directed spin labeling electron paramagnetic resonance spectroscopy (SDSL EPR). The Figure shows the structure of the dimeric LexA transcriptional repressor that controls the *E. coli* SOS response bound to a tisB operator double-stranded DNA fragment [PDB ID: 3JSO]. Individual subunits are colored blue and cyan, residues changed to cysteines and spin labeled are presented as yellow beads. Inter-spin label distances were determined using pulse electron paramagnetic resonance spectroscopy for the indicated spin-label pairs connected by dashed lines. The distance measurements revealed that in unbound LexA, the N-terminal DNA-binding domains (label position A29) sample different conformations. One of these conformations is captured when LexA is bound to operator targets. Contrarily, a spin label placed at position 191 in the C-terminal domain revealed a distance distribution remaining unaltered upon DNA binding, supporting the assumption that the C-terminal domains provide a rigid scaffold for the N-terminal DNA-binding domains in the LexA dimer. In the article by Klare in this issue (see pp. 1281–1300), the basics as well as recent progress in SDSL and EPR methods especially for investigations on protein structure, protein function, and interaction of proteins with other proteins or nucleic acids are reviewed. Labeling techniques as well as EPR methods are introduced and exemplified with applications to different systems.
Figure adopted from Butala et al. (2011), Nucleic Acids Res. *39*, pp. 6546–6557.

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