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GENETYCZNE ASPEKTY WIĄZANIA N_2 BAKTERII Z RODZAJU *AZOSPIRILLUM*

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Genetical aspects of nitrogen fixation by bacteria *Azospirillum* species

Abstract: Biological nitrogen fixation is catalysed by the nitrogen enzyme complex, which includes dinitrogenase (MoFe protein, *nif*DK gene products), containing the active site of dinitrogen reduction, and dinitrogenase reductase (Fe protein, *nif*H gene product) supplies the reducing power to the dinitrogenase. Nitrogenase is subject to elaborate control at the trans-criptional and post-translational levels by the concentrations of intracellular nitrogen and oxygen. Nitrogenase activity is also regulated at a post-translational level by two mechanisms. One of the best understood post-transcriptional regulatory mechanisms is reversible ADP-ribosylation, which has been found in some phototrophs and the *Azospirillum* genus. The dinitrogenase reductase ADP-ribosyltransferase/dinitrogenase reductase-activating glycohydrolase (DRAT/DRAG) systems, which involves reversible nitro-genase inactivation *via* ADP ribosylation in response to micromolar concentrations of ammonia. DRAT and DRAG are encoded by the *draTG* operon, which is not co-regulated with the *nif* genes but which is found near the *nif*HDK operon in *R. rubrum, A. lipofrum* and *A. brasilense.* Both DRAT and DRAG activities are regulated *in vivo,* but the mechanisms for their regulation are unknown.

Slowa kluczowe: *Azospirillum,* wiązanie azotu
Key words: *Azospirillum,* nitrogen fixation