BIOMOLECULAR CONCEPTS

DE GRUYTER

ABSTRACTED/INDEXED IN Chemical Abstracts and the CAS databases; EBSCO - Academic Search; Scopus.

ISSN 1868-5021· e-ISSN 1868-503X· CODEN BCIOB8

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TYPESETTING Compuscript Ltd., Shannon, Ireland

PRINTING Franz X. Stückle Druck und Verlag e.K., Ettenheim
Printed in Germany

COVER ILLUSTRATION
NDE1 and NDEL1 are structurally similar coiled-coil proteins of fundamental importance in mitosis and neurodevelopment. In the review article by Bradshaw et al. on pp. 447–464 in this issue, the authors undertake a comprehensive comparative assessment of the two proteins covering their clinical relevance in psychiatric and neurodevelopmental conditions, and the critical roles they play in the cell and developing brain. The authors develop the theme that even though these two "twin" proteins share similar structural characteristics, and have overlapping functions (i.e. have similar "nature"), they are differentially regulated post-translationally (i.e. have different "nurture"), differences that help explain why two highly similar proteins have been retained during vertebrate evolution and which may be of significant importance in understanding their roles in disease. The image on the cover illustrates the location of phosphorylated amino acid side chains proposed to be a fundamental part of this difference in "nurture", shown as red space-filling (NDEL1) and stick-representations (NDE1) mapped on the respective three-dimensional tetramer coiled-coil structures.
NDEL1 crystal structure coordinates from PDB ID 2V71 (Derewenda et al. , 2007, Structure 15, pp. 1467–1481), image by Dinesh Soares; NDE1 inset: homology model from Bradshaw et al., 2011, J. Neurosci. 31, pp. 9043–9054.

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