INTERNATIONAL SOLVAY INSTITUTES BRUSSELS

SOLVAY COLLOQUIUM

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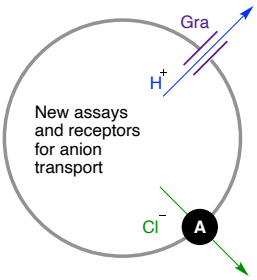
Transmembrane anion transport: mechanism selectivity and control

Facilitating anion transport across lipid bilayers by small molecules is an area of intense current interest due to the potential application of these compounds in the treatment of diseases such as cancer and cystic fibrosis. Several different approaches have been taken by groups worldwide including the development of synthetic channels[1] and small molecule discrete transporters.[2]

This colloquium will focus on work conduced in our research group following the development of transporters and assays to understand transport mechanisms,[3] the development of selective transporters and the role of fatty acids in selectivity,[4] how transport can be controlled using external stimuli[5] and how anion transporters affect the function of cells.[6]



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1. V. Gorteau, G. Bollot, J. Mareda, A. Perez-Velasco and S. Matile, J. Am. Chem. Soc., 2006, 128, 14788-14789.
2. A.J. Ayling, M. N. Pérez-Payán and A.P. Davis, J. Am. Chem. Soc. 2001, 123, 12716-12727.
3. X. Wu, E.N.W. Howe and P.A. Gale, Acc. Chem. Res. 2018, 51, 1870-1879; X. Wu and P.A. Gale, Chem. Commun. 2021, 57, 3979-3982.
4. X. Wu, L.W. Judd, E.N.W. Howe, A.M. Withecombe, V. Soto-Cerrato, H. Li, N. Busschaert, H. Valkenier, R. Perez-Tomas, D.N. Sheppard, Y.-B. Jiang, A.P. Davis and P.A. Gale, Chem, 2016, 1, 127-146; E.N.W. Howe and P.A. Gale, J. Am. Chem. Soc. 2019, 141, 10654-10660.
5.M. Fares, X. Wu, D. Ramesh, W. Lewis, P.A. Keller, E.N.W. Howe, R. Pérez-Tomás and P.A. Gale, Angew. Chem. Int. Ed., 2020, 59, 17614-17621; S.J. Wezenberg, L.-J. Chen, J.E. Bos, B.L. Feringa, E.N.W. Howe, X. Wu, M.A. Siegler and P.A. Gale, J. Am. Chem. Soc. 2022, 144, 331-338.
6. N. Busschaert, S.-H. Park, K.-H. Baek, Y.P. Choi, J. Park, E.N.W. Howe, J.R. Hiscock, L.E. Karagiannidis, I. Marques, V. Félix, W. Namkung, J.L. Sessler, P.A. Gale and I. Shin, Nature Chem., 2017, 9, 667-675; S. Cheung, D. Wu, H.C. Daly, N. Busschaert, M. Morgunova, J.C. Simpson, D. Scholz, P.A. Gale and D.F. O'Shea, Chem, 2018, 4, 879-895; S.-H. Park, S.-H. Park, E.N.W. Howe, J.Y. Hyun, L.-J. Chen, I. Huang, G. Vargas-Zuñiga, N. Busschaert, P.A. Gale, J.L. Sessler, I. Shin, Chem, 2019, 5, 2079-2098; W. G. Ryder, M.E. Graziotto, A. Levina, B.A. Hawkins, D.E. Hibbs, E.J. New and P.A. Gale, Chem, 2025, 11, 102247.

Monday 28 April 2025 at 4:00 P.M.

COFFEE AND TEA WILL BE SERVED AT 3:45 P.M IN FRONT OF THE SOLVAY ROOM

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