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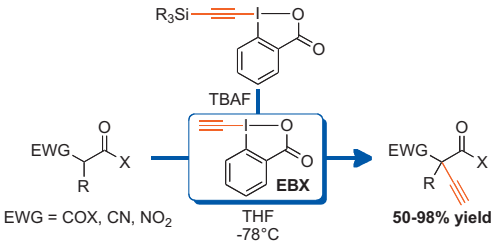
Swiss Science Concentrates

A CHIMIA Column

Short Abstracts of Interesting Recent Publications of Swiss Origin

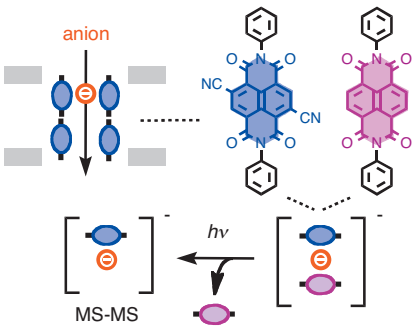
Ethynyl-1,2-benziodoxol-3(1*H*)-one (EBX): An Exceptional Reagent for the Ethynylation of Keto, Cyano, and Nitro Esters

D. Fernández González, J. P. Brand, and J. Waser*, *Chem. Eur. J.* **2010**, *16*, 9457.
EPF Lausanne
The *in situ* generation of ethynyl-1,2-benziodoxol-3(1*H*)-one (EBX) from a silyl-protected reagent by using TBAF is reported. EBX displayed exceptional acetylene transfer ability onto stabilized enolates, even at –78 °C. The mild reaction conditions allowed the first ethynylation reactions of linear keto, cyano, and nitro esters in high yields to give all-carbon quaternary centers or non-natural amino acids after reduction of the nitro group.



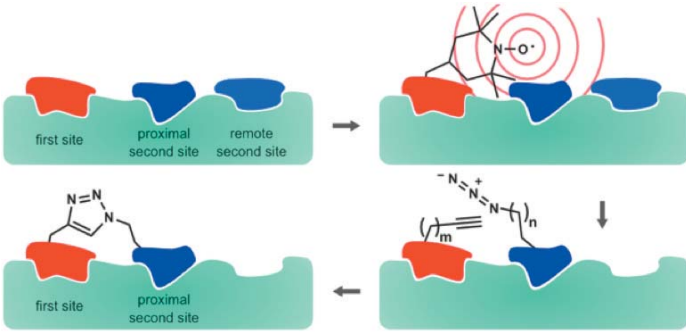
Experimental Evidence for the Functional Relevance of Anion–π Interactions

R. E. Dawson, A. Hennig, D. P. Weimann, D. Emery, V. Ravikumar, J. Montenegro, T. Takeuchi, S. Gabutti, M. Mayor, J. Mareda, C. A. Schalley, and S. Matile*, *Nature Chem.* **2010**, *2*, 533.
Universities of Geneva, Basel, Berlin and Karlsruhe Institute of Technology (D)
Cation-π contacts are widely recognized as stabilizing interactions. In the presence of electron-deficient aromatic groups, anion-π interactions have been hypothesized, but never caught in the act. With this goal in mind, Dawson *et al.* have evaluated a series of naphtalenediimides (NDI) in the presence of various anions. Relying on electron-spray tandem mass spectroscopy and quantum calculations, they correlated the strength of this non-covalent interaction with anion-transport properties for a given anion-NDI pair. Recognizing the importance of these anion-π contacts should have wide-reaching consequences ranging from organocatalysis to cellular signaling.



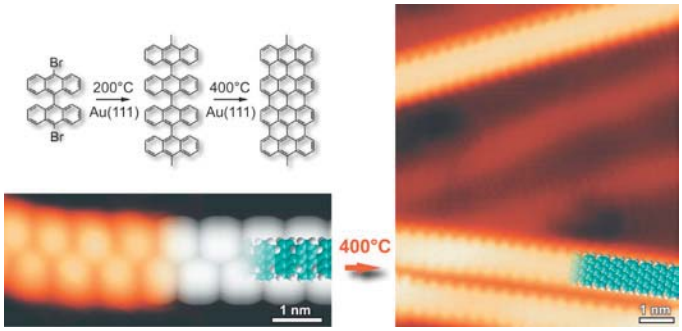
A Fragment-Based *In Situ* Combinatorial Approach To Identify High-Affinity Ligands for Unknown Binding Sites.

S. V. Shelke, B. Cutting, X. Jiang, H. Koliwer-Brandl, D. S. Strasser, O. Schwardt, S. Kelm, and B. Ernst*, *Angew. Chem. Int. Ed.* **2010**, *49*, 5721.
University of Basel and University of Bremen (D)
The identification of a nanomolar mimetic of the physiological ligand of a target protein is exceedingly tedious. The authors report a successful approach with a small fragment library for the development of an inhibitor for the myelin-associated glycoprotein (MAG, Siglec-4). For this purpose, a second-site ligand was identified by NMR screening using a spin-labeled first-site ligand followed by receptor mediated linking of the two fragments.



Atomically Precise Bottom-up Fabrication of Graphene Nanoribbons

J. Cai, P. Ruffieux, R. Jaafar, M. Bieri, T. Braun, S. Blankenburg, M. Muoth, A. P. Seitsonen, M. Saleh, X. Feng, K. Müllen*, and R. Fasel*, *Nature* **2010**, *466*, 470.
Empa, ETH Zürich, University of Zürich, University P & M Curie (F), Max Planck Institute Mainz (D) and University of Bern
Interested in the production of low-dimensional nanoscale electronic devices, Cai *et al.* present a bottom-up approach for the synthesis of atomically precise graphene nanoribbons narrower than 2 nm. Using gold surfaces-assisted coupling and cyclodehydrogenation, they were able to grow graphene nanoribbons with different topologies and widths using aromatic molecular precursors.



Prepared by N. Bruns, V. Köhler, R. Kramer, P. Mauleón, F. Monnard and T. R. Ward
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