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Natural Products

C. C. Hughes, W. Fenical*

Antibacterials from the Sea

Cures from the Ocean: Marine organisms synthesize complex metabolites with antibacterial properties (see picture) to fend off co-occurring microbes. Representatives from each of five classes of natural products (ribosomal and non-ribosomal peptides, polyketides, alkaloids, and terpenes) isolated as new antibacterial metabolites from the marine organisms are described (picture courtesy of X. Alvarez-Micó).



Chem. Eur. J.
DOI: [10.1002/chem.201001279](https://doi.org/10.1002/chem.201001279)

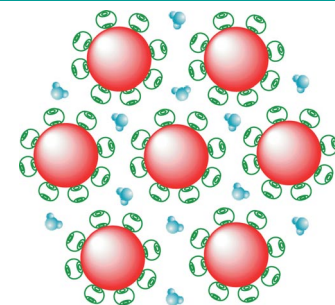


Nanoparticles

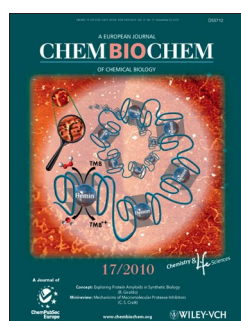
T. Premkumar, K. E. Geckeler*

Cucurbit[7]uril as a Tool in the Green Synthesis of Gold Nanoparticles

Golden balls: A simple, straightforward, one-pot synthesis of gold nanoparticles (AuNPs) is reported from the reaction of an aqueous mixture of KAuCl_4 and the macrocycle cucurbit[7]uril in the presence of NaOH (see picture). The AuNPs have been shown to be catalytically active. Surprisingly, the macrocycle can play a dual role in the synthesis of AuNPs: as a reducing agent as well as being a protecting agent.



Chem. Asian J.
DOI: [10.1002/asia.201000338](https://doi.org/10.1002/asia.201000338)

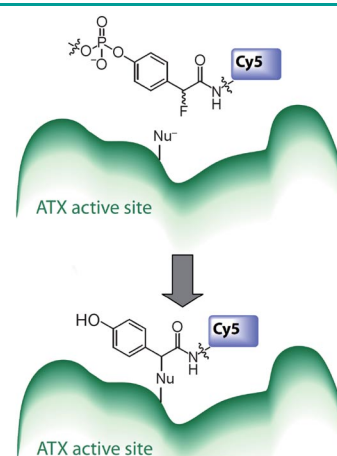


Biomarkers

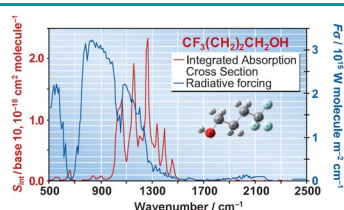
S. Cavalli, A. J. S. Houben, H. M. H. G. Albers, E. W. van Tilburg, A. de Ru, J. Aoki, P. van Veelen, W. H. Moolenaar, H. Ovaa*

Development of an Activity-Based Probe for Autotaxin

Marking biomarkers: ATX is a secreted lysophospholipase D that produces the lipid mediator lysophosphatidic acid. We have developed a fluorescent activity-based probe that covalently binds to the active site of ATX, allowing visualisation of active ATX. This probe can be used for monitoring ATX activity in body fluids and for inhibitor screening.



ChemBioChem
DOI: [10.1002/cbic.201000349](https://doi.org/10.1002/cbic.201000349)



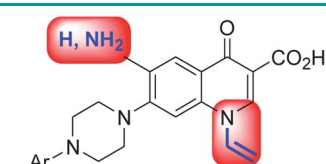
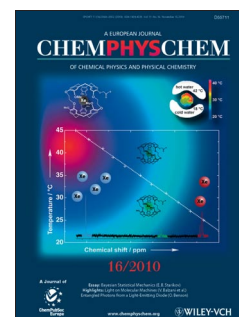
ChemPhysChem
DOI: 10.1002/cphc.201000365

Atmospheric Global Warming

E. Jiménez, M. Antiñolo, B. Ballesteros, E. Martínez, J. Albaladejo*

Atmospheric Lifetimes and Global Warming Potentials of $\text{CF}_3\text{CH}_2\text{CH}_2\text{OH}$ and $\text{CF}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$

Hydrofluoroalcohols, such as $\text{CF}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$, are expected to have a negligible influence on atmospheric radiative forcing. The integrated IR absorption cross-sections and radiative forcing of $\text{CF}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$ overlap (see picture). The measured atmospheric lifetimes are used to calculate the global warming potential. These fluorinated alcohols are very short-lived species and are quickly degraded by OH radicals.



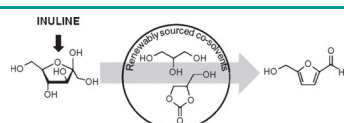
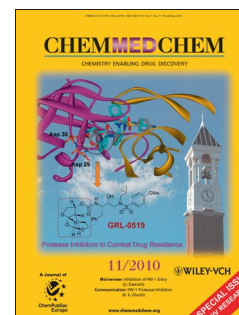
ChemMedChem
DOI: 10.1002/cmdc.201000267

Antiviral Agents

O. Tabarrini,* S. Massari, D. Daelemans, F. Meschini, G. Manfroni, L. Bottega, B. Gatto, M. Palumbo, C. Pannecouque, V. Cecchetti

Studies of Anti-HIV Transcription Inhibitor Quinolones: Identification of Potent N1-Vinyl Derivatives

The mighty quinolones! In order to identify the pharmacophore features responsible for the anti-HIV properties of Tat-mediated transcription inhibitor 6-desfluoroquinolones (6-DFQs), we have focused our attention on the pyridone ring of the quinolone nucleus. This study highlights the major role of the N1 substituent in modulating anti-HIV activity, with the vinyl moiety exhibiting the most favorable potency.



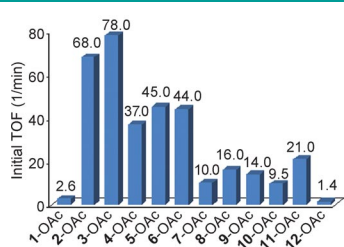
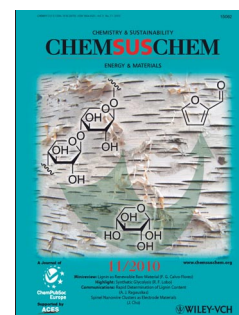
ChemSusChem
DOI: 10.1002/cssc.201000162

Renewable Resources

M. Benoit, Y. Brissonnet, E. Guélou, K. De Oliveira Vigier, J. Barrault, F. Jérôme*

Acid-Catalyzed Dehydration of Fructose and Inulin with Glycerol or Glycerol Carbonate as Renewably Sourced Co-Solvent

Super subs: The amount of the ionic liquid [BMIM]Cl required for the acid-catalyzed dehydration of fructose and inulin into HMF, over Amberlyst 70 resin as solid acid catalyst, can be reduced by substituting it (up to 90 wt %) with large amounts of glycerol or glycerol carbonate; cheap co-solvents from renewable sources.



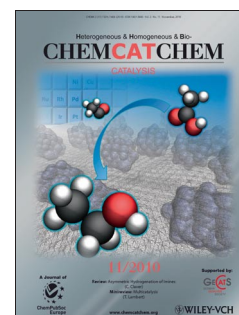
ChemCatChem
DOI: 10.1002/cctc.201000162

Kinetic Resolution

X. Zhu, K. Venkatasubbaiah, M. Weck, C. W. Jones*

Kinetic Evaluation of Cooperative [Co(salen)] Catalysts in the Hydrolytic Kinetic Resolution of *rac*-Epichlorohydrin

To compare the reactivity and selectivity of the different [Co(salen)] cooperative catalyst designs, 12 representative catalysts are employed in the hydrolytic kinetic resolution (HKR) of epichlorohydrin under identical conditions. The soluble cyclic oligomeric catalytic systems possess outstanding activity and enantioselectivity. A cross-linked polymer resin catalyst is identified as a promising, easily recyclable heterogeneous catalyst for HKR of epoxides.



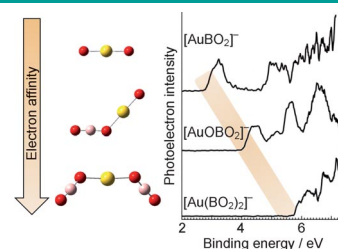


Hyperhalogens

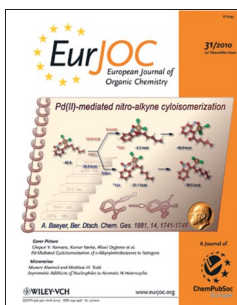
M. Willis, M. Götz, A. K. Kandam,*, G. F. Ganteför,*, P. Jena*

Hyperhalogens: Discovery of a New Class of Highly Electronegative Species

Hyper trumps super: A central atom, typically a metal, surrounded by halogen or oxygen atoms is called a superhalogen. Theoretical calculations and experiments reveal that a new class of highly electronegative species can be created when the central metal atom is surrounded by superhalogen moieties. These hyperhalogens can have electron affinities even larger than those of their superhalogen building blocks.



Angew. Chem. Int. Ed.
DOI: 10.1002/anie.201002212

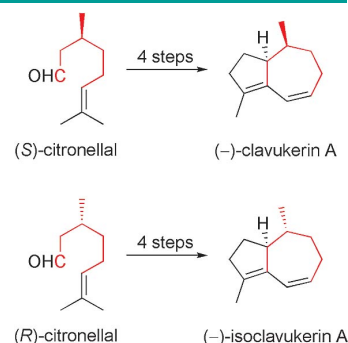


Hydroazulene Synthesis

S. Knüppel, V. O. Rogachev, P. Metz*

A Concise Catalytic Route to the Marine Sesquiterpenoids (–)-Clavukerin A and (–)-Isoclavukerin A

A combination of an organocatalytic Michael addition and a ruthenium-catalyzed diene metathesis allowed efficient access to the enantiopure title hydroazulenes from (S)- and (R)-citronellal, respectively, in only four steps.



Eur. J. Org. Chem.
DOI: 10.1002/ejoc.201001087

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