

SPOTLIGHTS ...

Biosensors

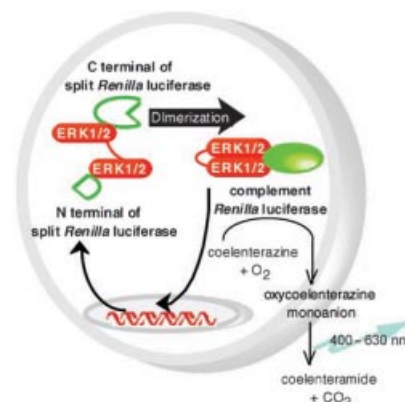
A. Kaihara, Y. Umezawa*

Genetically Encoded Bioluminescent Indicator for ERK2 Dimer in Living Cells

Chem. Asian J.

DOI: 10.1002/asia.200700186

A pair of lights: The detection of dimers of extracellular signal-regulated kinase 2 (ERK2) is made possible by a bioluminescent indicator developed with the split *Renilla* luciferase complementation method. External stimuli induce the formation of ERK2 dimer in living cells, which then produces spontaneous emission of bioluminescence that is detected by this indicator.



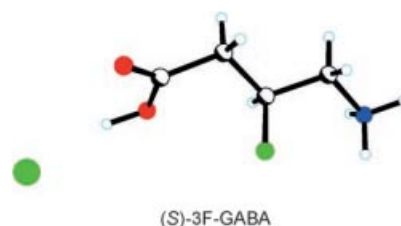
GABA Analogue

G. Deniau, A. M. Z. Slawin, T. Lebl, F. Chorki, J. P. Issberger, T. van Mourik, J. M. Heygate, J. J. Lambert, L.-A. Etherington, K. T. Sillar, D. O'Hagan*

Synthesis, Conformation and Biological Evaluation of the Enantiomers of 3-Fluoro- γ -Aminobutyric Acid ((*R*)- and (*S*)-3F-GABA): An Analogue of the Neurotransmitter GABA

ChemBioChem

DOI: 10.1002/cbic.200700371



Fluorine on the brain. The enantiomers of 3-fluoro- γ -aminobutyric acid (3F-GABA) have been prepared and explored in a preliminary evaluation as GABA_A agonists of cloned receptors and in a whole animal model. The favoured *gauche* rather than *anti* relationships between the C–F and C–NH₃⁺ bonds in these molecules allow enantiomeric conformations to be assumed that have the potential to delineate the binding modes of GABA to target receptors.

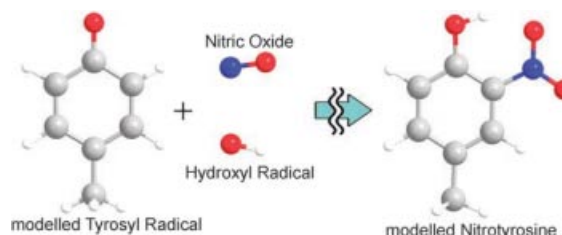
Radical mechanism

K. D. Papavasileiou, T. D. Tzima, Y. Sanakis,* V. S. Melissas*

A DFT Study of the Nitric Oxide and Tyrosyl Radical Interaction: A Proposed Radical Mechanism

ChemPhysChem

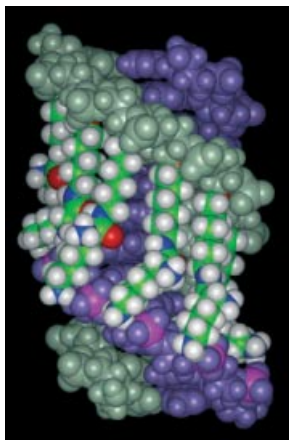
DOI: 10.1002/cphc.200700434



Radicals at work: A new pathway for the nitration of tyrosine in aqueous medium is proposed (see figure). Tyrosyl radicals play an essential role in catalytic reactions of numerous

enzymes and react with nitric oxide through a sequence of non-ionic water catalyzed and biologically feasible intermediate reactions, yielding nitrotyrosine.

Cationic nucleotides consisting of lysine tethered by a 2'-O-aminoethyl linker to uridine incorporated into siRNA increase target affinity and can be used in functional oligonucleotides for effective gene silencing in vitro. In DNA-based antisense oligonucleotides, affinity to the RNA complement was decreased, but the in vitro activity increased with a greater number of modifications.



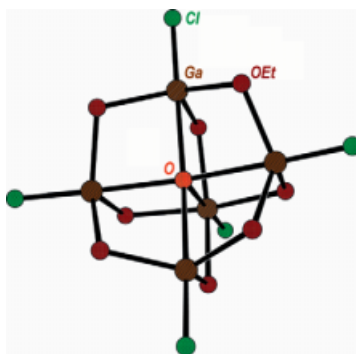
Gene Silencing

J. Winkler, M. Gilbert,
A. Kocourková, M. Stessl, C. R. Noe*

2'-O-Lysylaminoethyl Oligonucleotides: Modifications for Antisense and siRNA

ChemMedChem
DOI: 10.1002/cmdc.200700169

Metathesis of solid GaCl_3 with NaOEt/EtOH provided oxoalkoxide chloride complexes of gallium. Residues that were redissolved in either toluene/MeCN or toluene/pyridine gave after storage $\text{Ga}_5(\mu_5\text{-O})(\mu\text{-OEt})_8\text{Cl}_5$ (**1**) or $[\text{Ga}_{12}(\mu_4\text{-O})_2(\mu_3\text{-O})_5(\mu\text{-OEt})_{10}\text{Cl}_{12}\text{Py}_4]\text{Py}$ (**2**), respectively, both at room temperature and in relatively high yields.

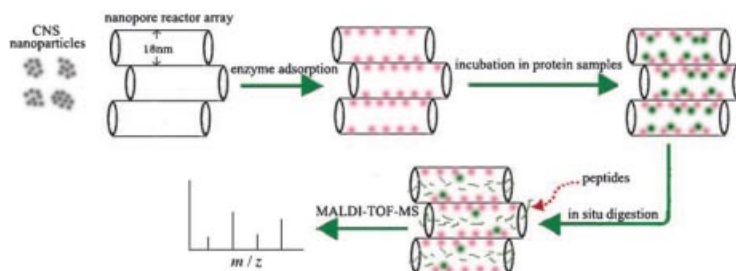


Oligonuclear Gallium Compounds

E. V. Suslova, V. G. Kessler,* S. Gohil,
N. Y. Turova

Oxoethoxide Chlorides – Representatives of Oligonuclear Alkoxide Complexes of Gallium: Penta- and Dodecanuclear Molecules

Eur. J. Inorg. Chem.
DOI: 10.1002/ejic.200700635



Prot(e)o-types: Mesoporous silicates with cyano functional groups for accommodating trypsin have been proposed as a nanopore-based bioreactor

to favor highly efficient protein digestion inside the mesochannels (see graphic).

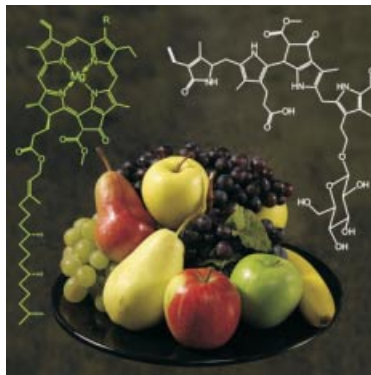
Proteomics

L. Qiao, Y. Liu, S. P. Hudson,
P. Yang, E. Magner, B. Liu*

A Nanoporous Reactor for Efficient Proteolysis

Chem. Eur. J.
DOI: 10.1002/chem.200701102

An apple a day keeps the doctor away. This old saying may obtain a new meaning. The degradation of chlorophyll in ripe apples and pears gives rise to so-called nonfluorescent catabolites of chlorophyll (NCCs), which are identical to NCCs from leaves. The NCCs from fruit prove to be effective natural antioxidants.



Chlorophyll Breakdown

T. Müller, M. Ulrich, K.-H. Ongania,
B. Kräutler*

Colorless Tetrapyrrolic Chlorophyll Catabolites Found in Ripening Fruit Are Effective Antioxidants

Angew. Chem. Int. Ed.
DOI: 10.1002/anie.703587