

# SPOTLIGHTS ...

## Biosensors

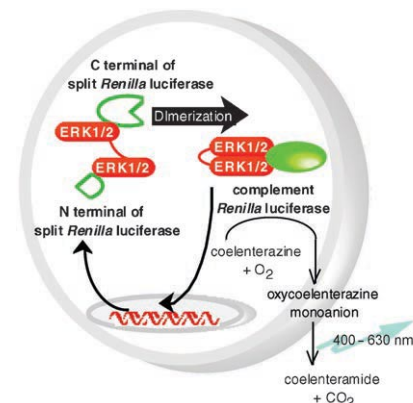
A. Kaihara, Y. Umezawa\*

### 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.



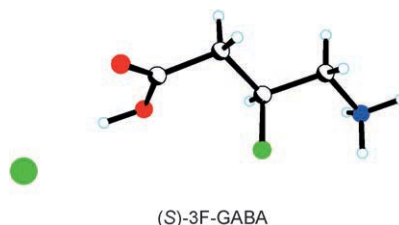
## GABA Analogue

G. Deniau, A. M. Z. Slawin, T. Lebl, F. Chorki, J. P. Issberner, 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- $\gamma$ -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- $\gamma$ -aminobutyric acid (3F-GABA) have been prepared and explored in a preliminary evaluation as GABA<sub>A</sub> agonists of cloned receptors and in a whole animal model. The favoured *gauche* rather than *anti* relationships between the C–F and C–NH<sub>3</sub><sup>+</sup> bonds in these molecules allow enantiomeric conformations to be assumed that have the potential to delineate the binding modes of GABA to target receptors.

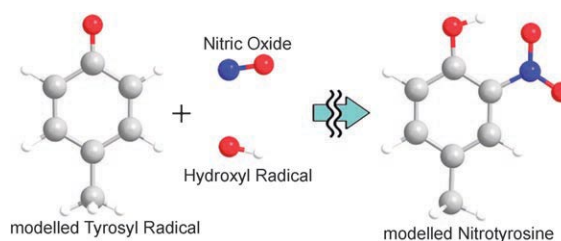
## Radical mechanism

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.

## ... ON OUR SISTER JOURNALS

### Gene Silencing

**Cationic nucleotides** consisting of lysine tethered by a 2'-*O*-aminohexyl 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.

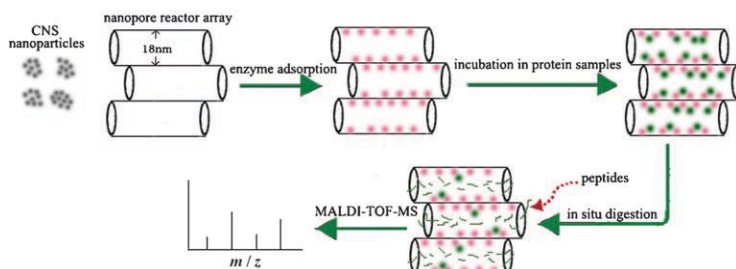


J. Winkler, M. Gilbert,  
A. Kocourková, M. Stessl, C. R. Noe\*

**2'-*O*-Lysylaminohexyl  
Oligonucleotides: Modifications for  
Antisense and siRNA**

*ChemMedChem*  
DOI: 10.1002/cmdc.200700169

### Proteomics



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

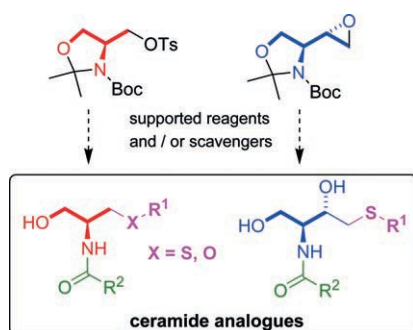
to favor highly efficient protein digestion inside the mesochannels (see graphic).

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

### Ceramide Analogues



A simple solution-phase protocol for the synthesis of ceramide analogues from enantiopure scaffolds is disclosed. Nucleophilic thiolates or phenoxides and appropriate supported reagents or scavengers are used to give the target compounds in good overall yields. The method is adaptable to combinatorial protocols for the generation of small-to-medium-sized libraries.

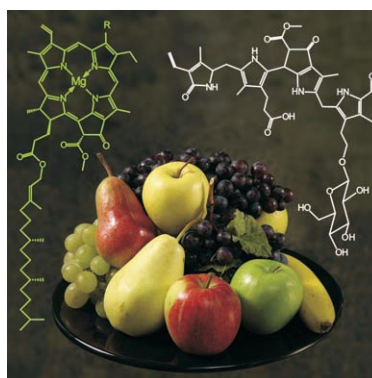
S. Grijalvo, X. Matabosch,  
A. Liebaria, A. Delgado\*

**A Straightforward Protocol for the  
Solution-Phase Parallel Synthesis of  
Ceramide Analogues**

*Eur. J. Org. Chem.*  
DOI: 10.1002/ejoc.200700814

### Chlorophyll Breakdown

**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.



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