



UNIVERSITÀ
DEGLI STUDI DI TRIESTE

Fabio Benedetti

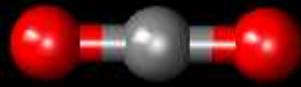
Dipartimento di Scienze Chimiche e Farmaceutiche

*La forma delle molecole:
estetica, complessità, funzione.....e gusto*

Alcune semplici molecole



HCl



CO₂



H₂O



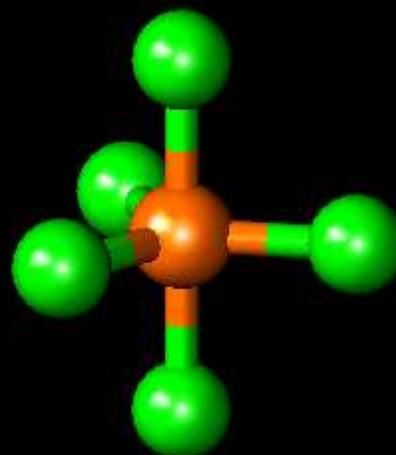
BH₃



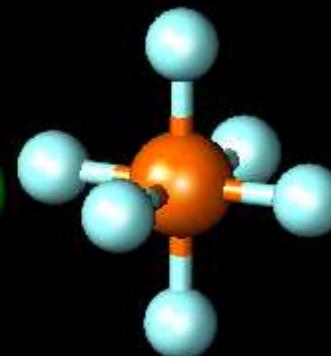
NH₃



CH₄



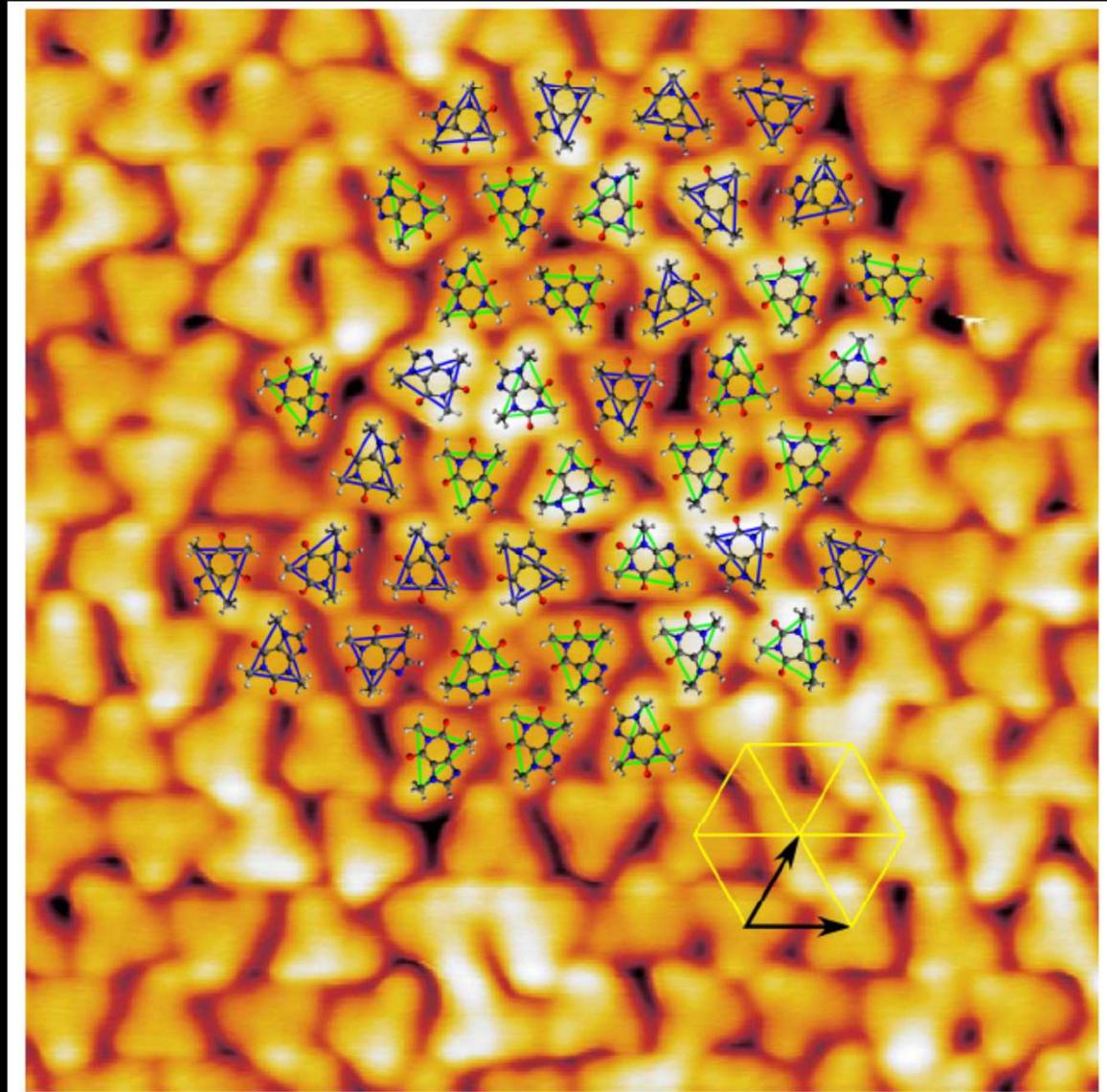
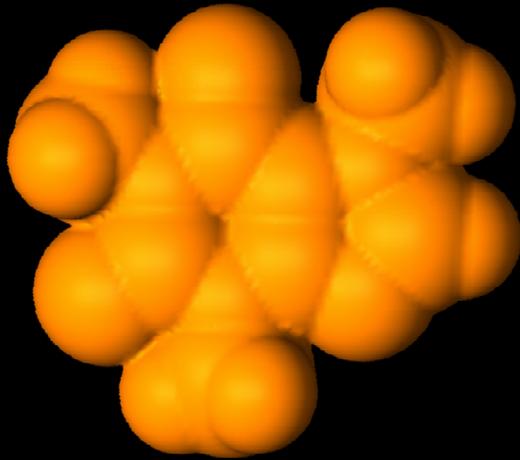
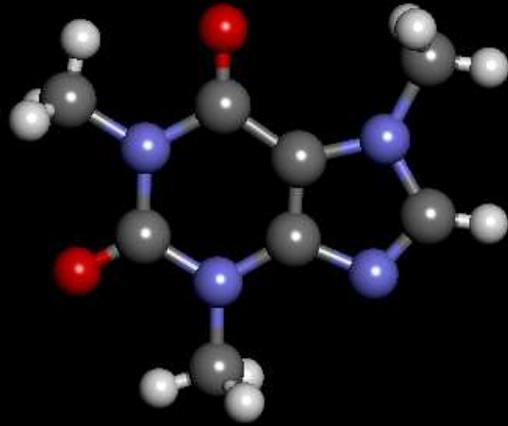
PCl₃



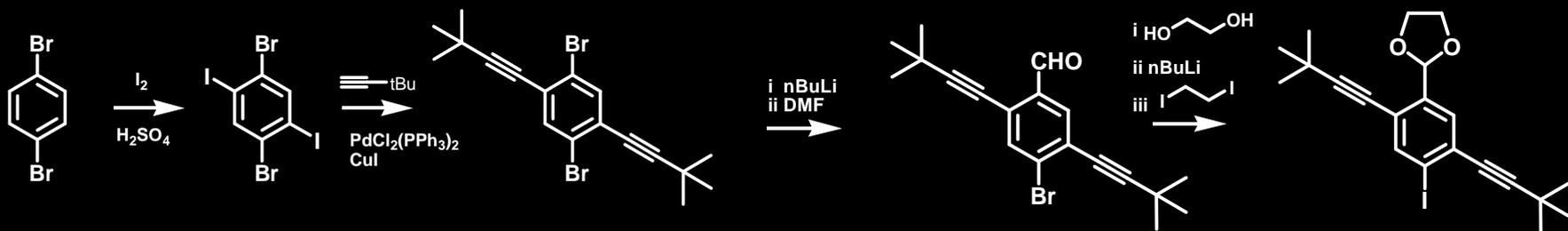
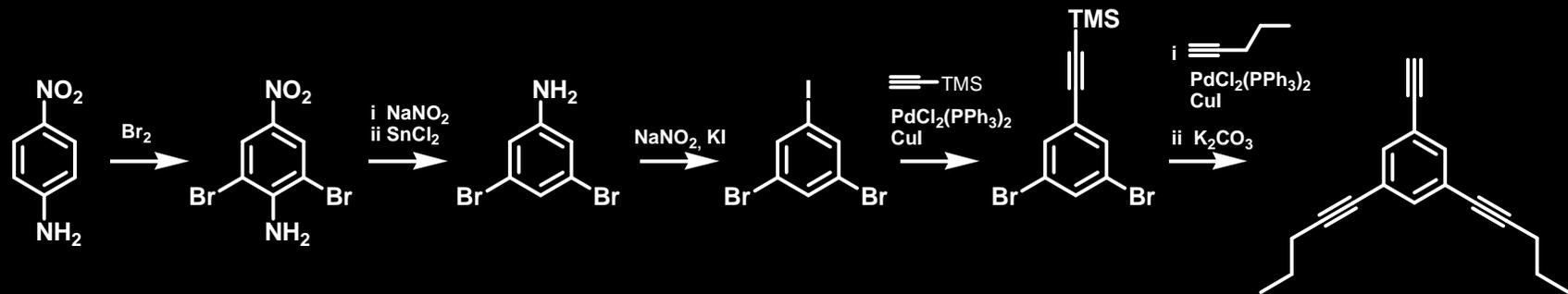
PF₆²⁻



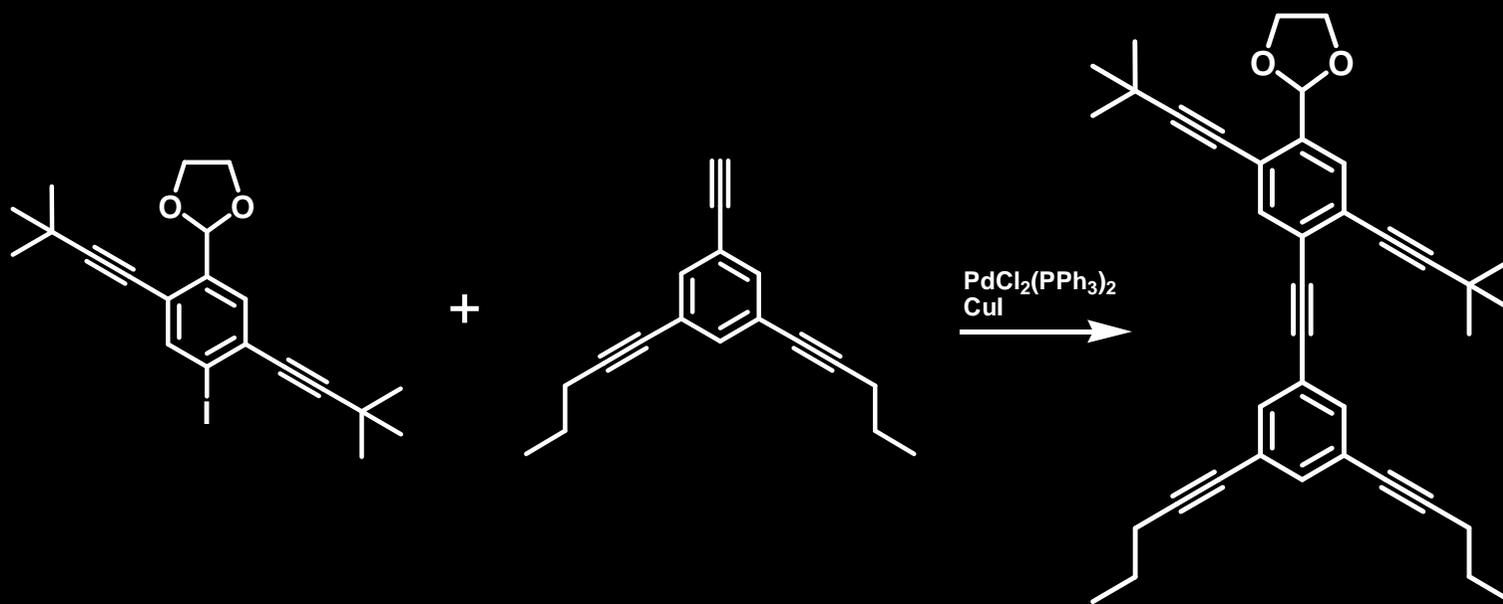
Caffeina



La sintesi chimica dal semplice al complesso

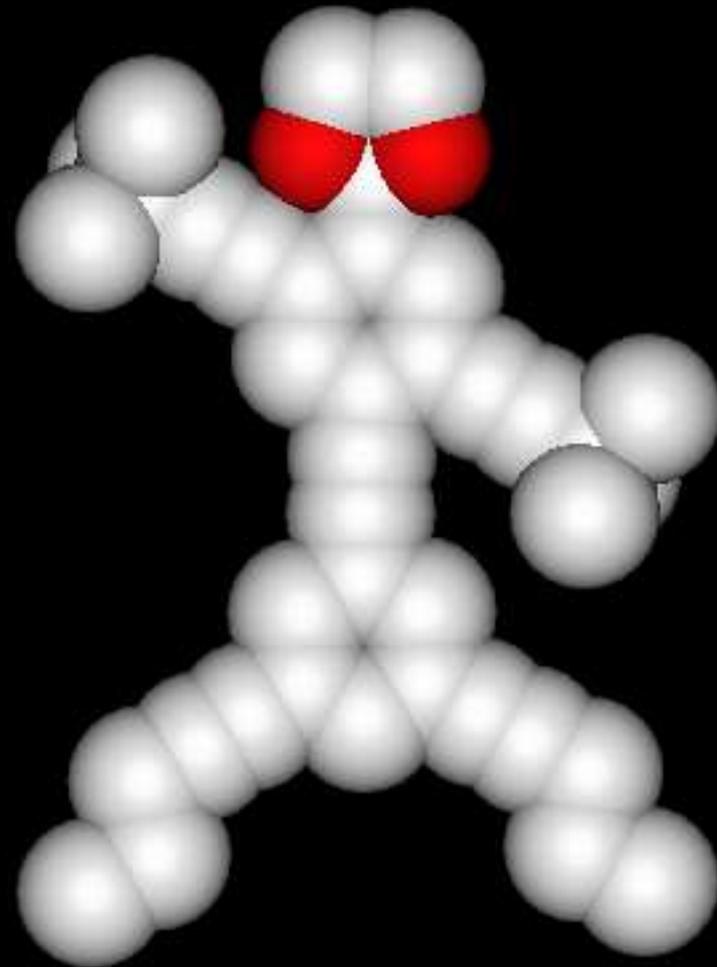


La sintesi chimica: una molecola antropomorfa



Nano Kid

1.84 nm
(0.00000000184 m)



Synthesis of Anthropomorphic Molecules: The NanoPutians

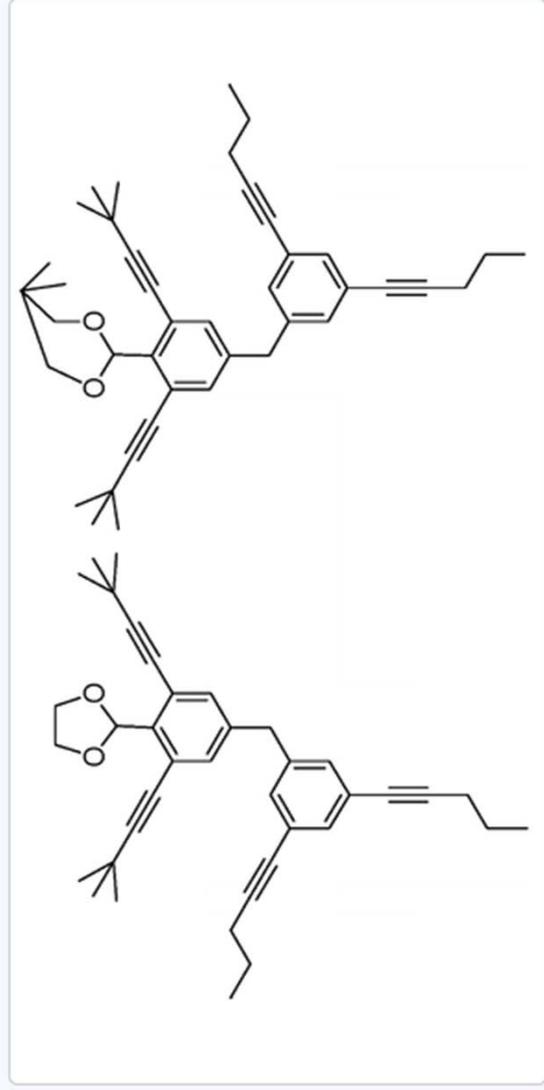
Stephanie H. Chanteau and James M. Tour*

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Received June 27, 2003

Described here are the synthetic details en route to an array of 2-nm-tall anthropomorphic molecules in monomeric, dimeric, and polymeric form. These anthropomorphic figures are called, as a class, NanoPutians. Using tools of chemical synthesis, the ultimate in designed miniaturization can be attained while preparing the most widely recognized structures: those that resemble humans.



Riconoscimento molecolare

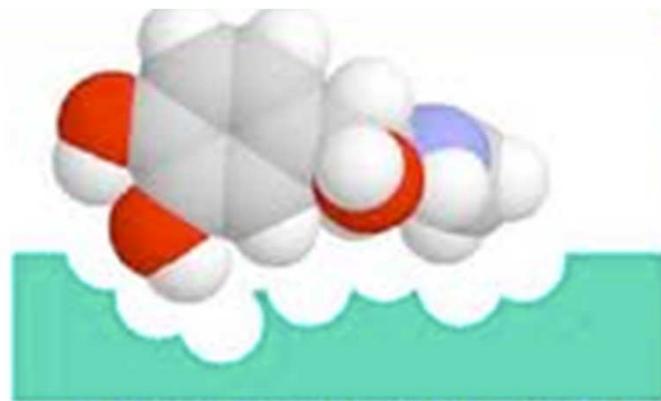


Emil Fischer 1852-1919

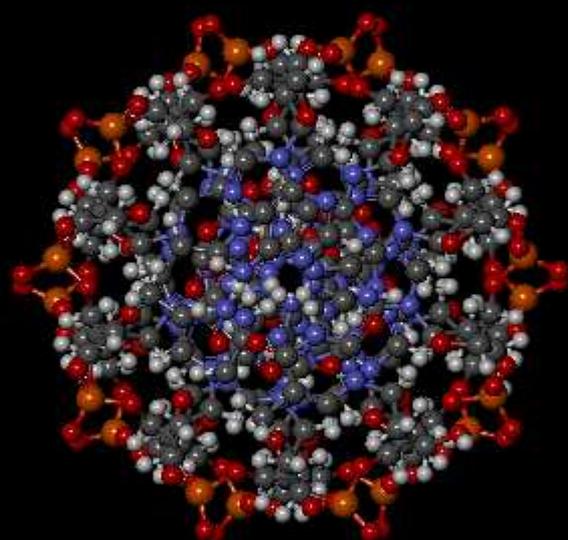
Premio Nobel 1902



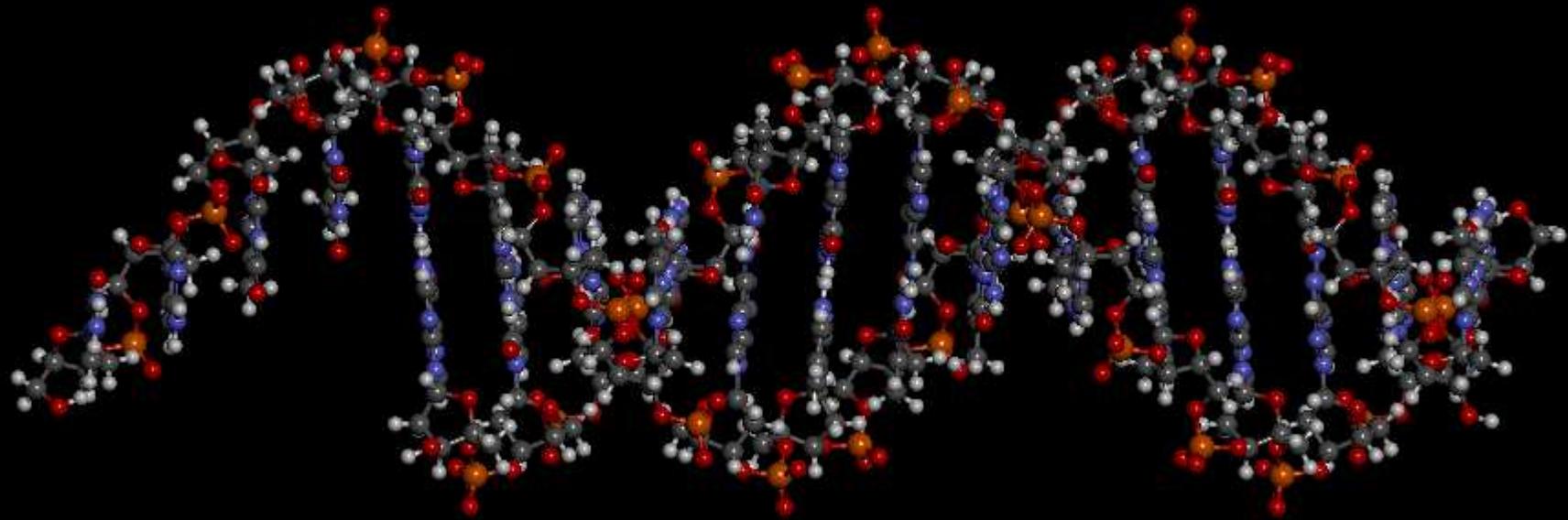
chiave e serratura



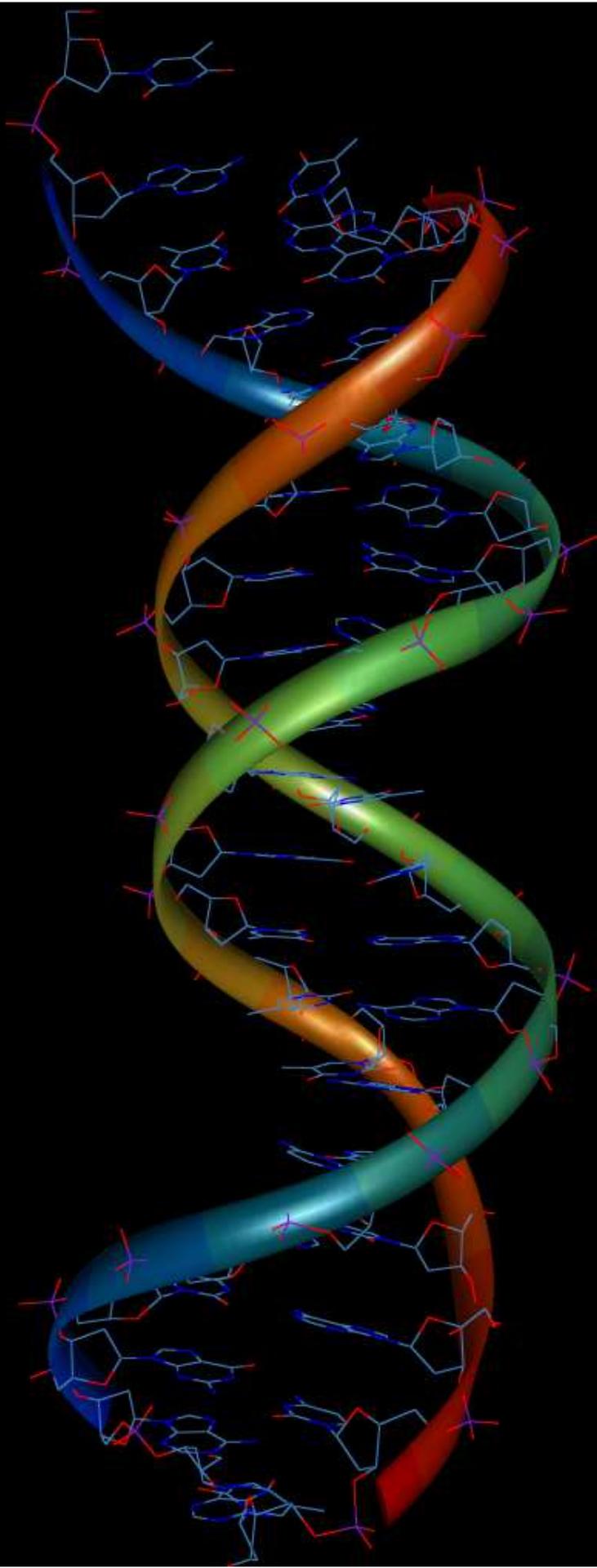
ligando e recettore



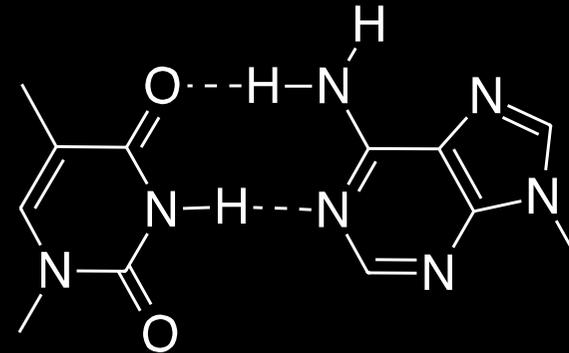
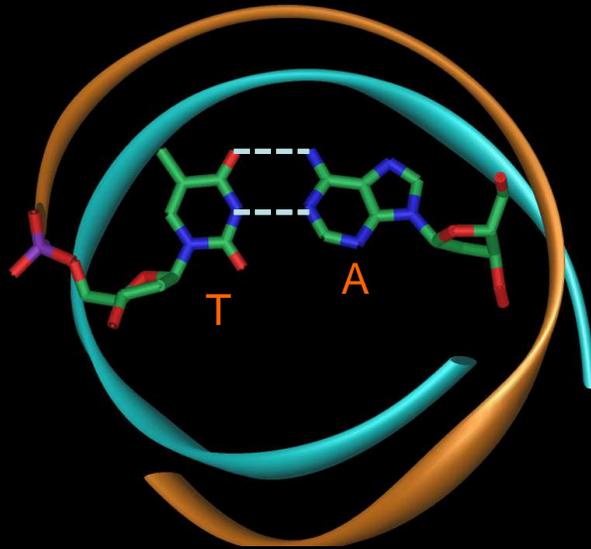
DNA



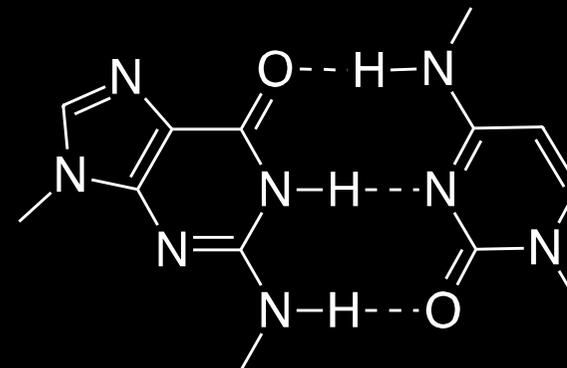
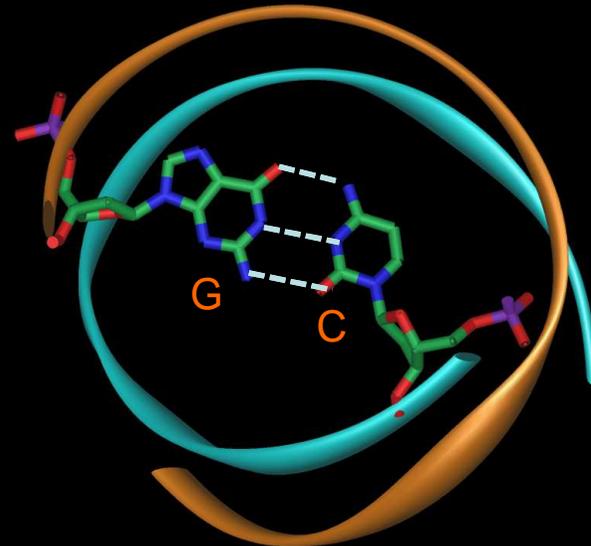
Riconoscimento Molecolare



Riconoscimento tra coppie di basi nel DNA



Thymine.....Adenine



Guanine.....Cytosine

Il gusto



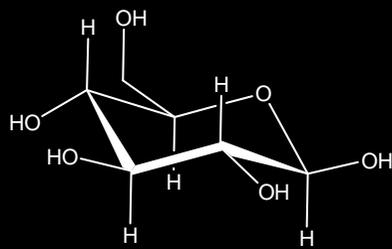
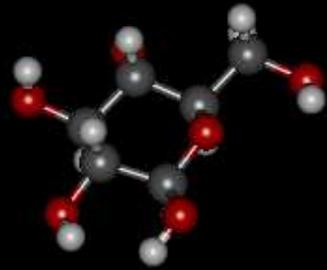
Il gusto



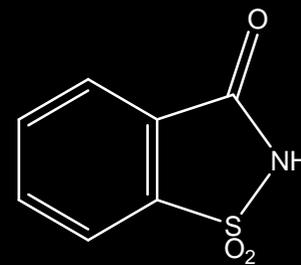
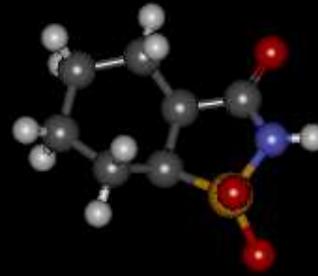
5 sapori: dolce
amaro
salato
acido
umami



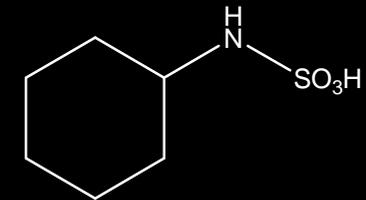
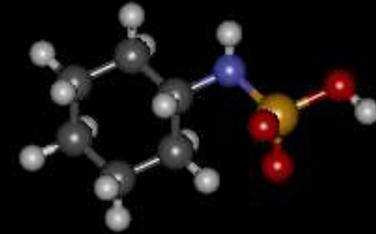
Dolce



glucosio

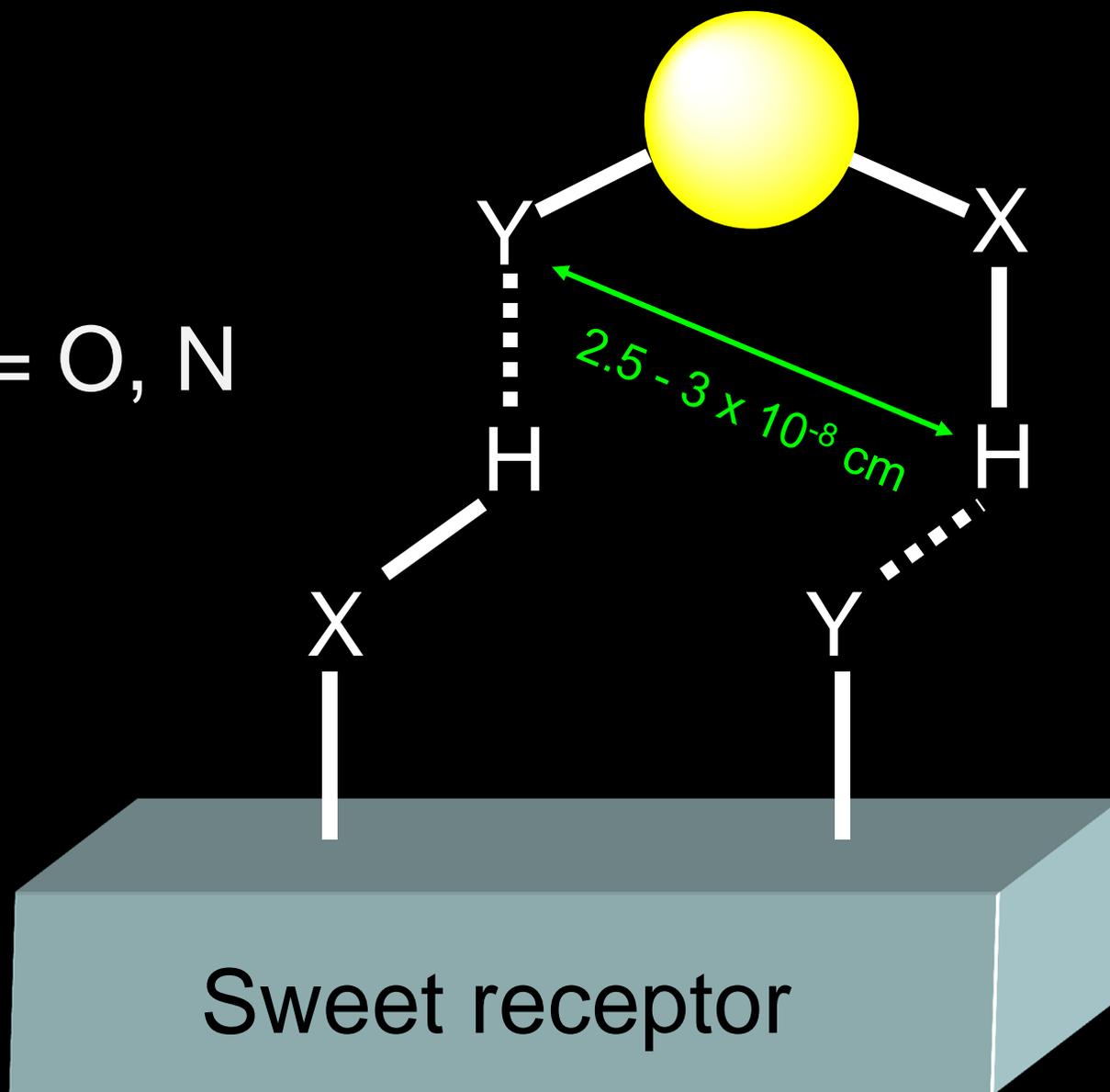


saccarina



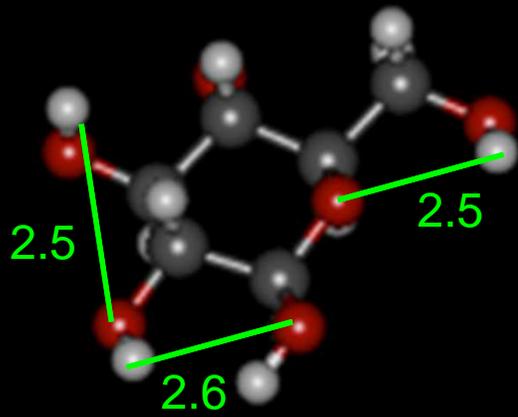
ciclammato

X, Y = O, N

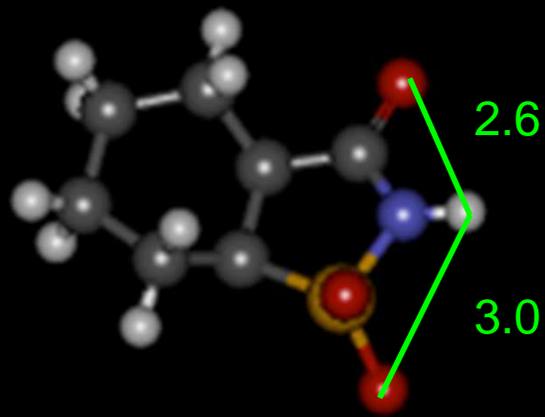


Sweet receptor

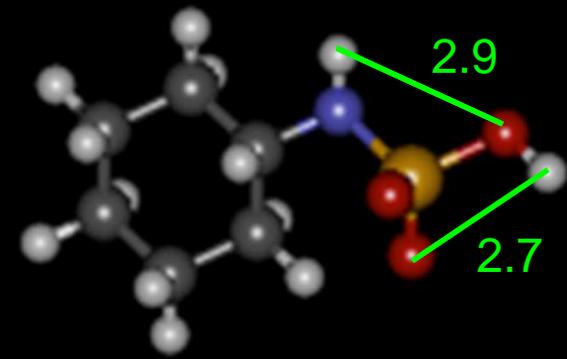
Dolce



glucosio

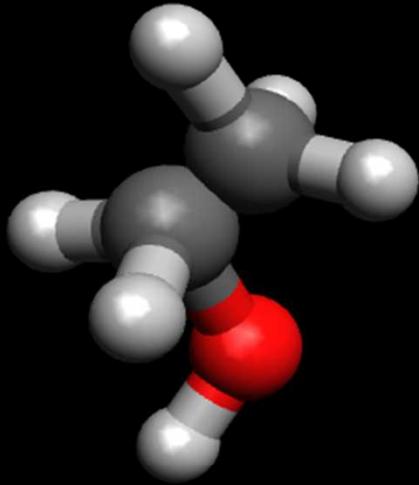


saccarina

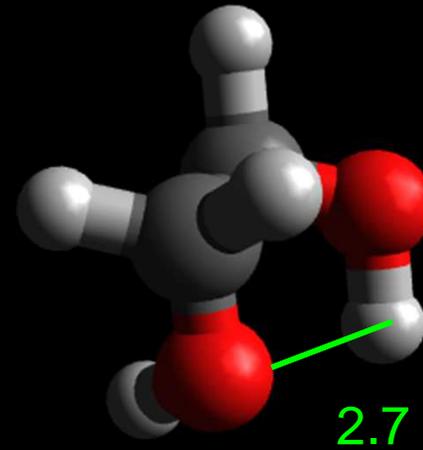


ciclammato

Dolce



Etanolo
non dolce



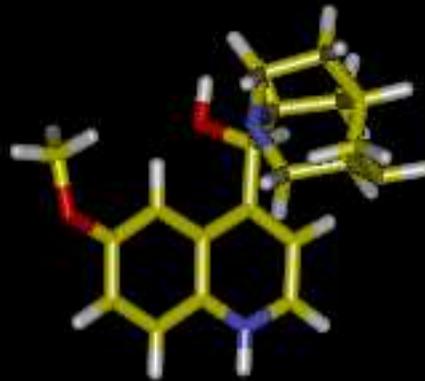
Glicole etilenico
dolce



Amaro



nicotina



chinina



strychnina

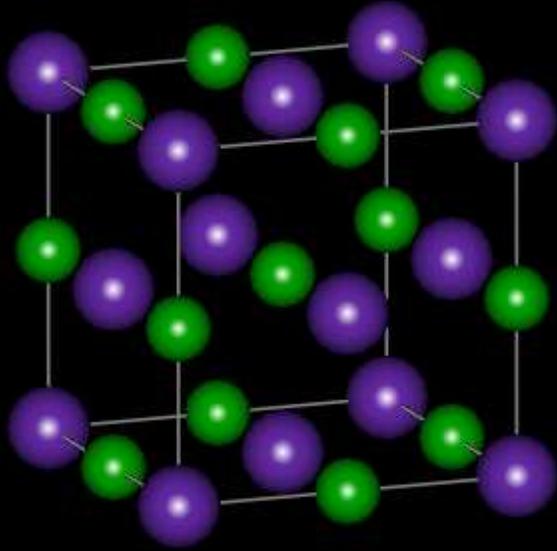


Salato

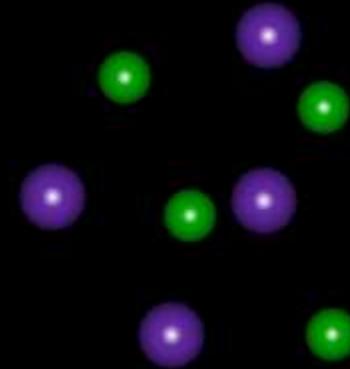
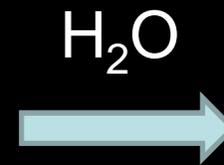


Acido

Salato

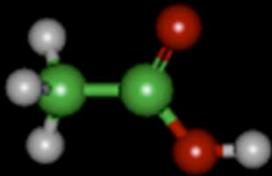
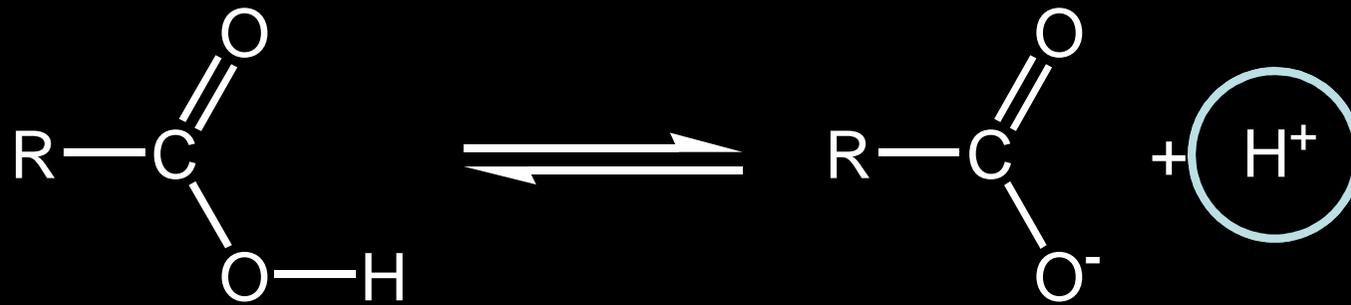


Solido ionico NaCl

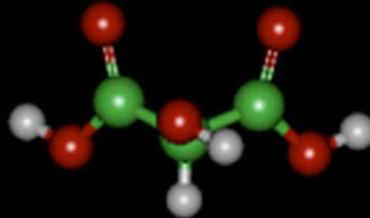


Ioni
Na⁺, Cl⁻

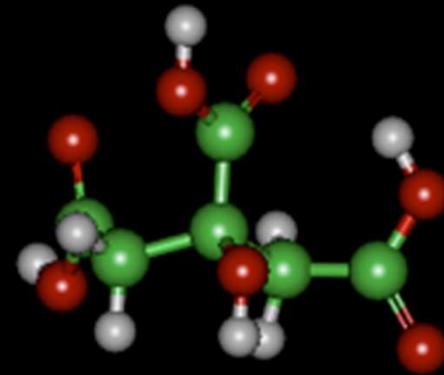
Acido



Acido acetico
(aceto)

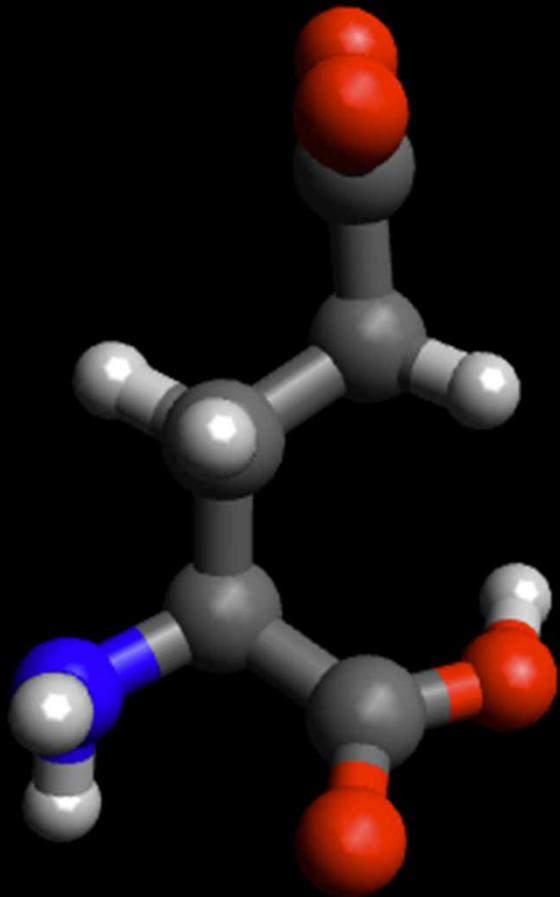


Acido malico
(mele)

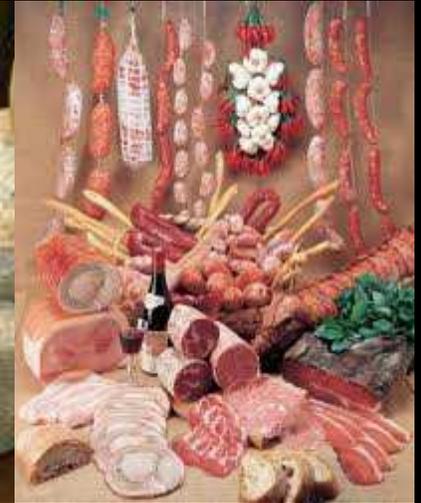


Acido citrico
(agrumi)

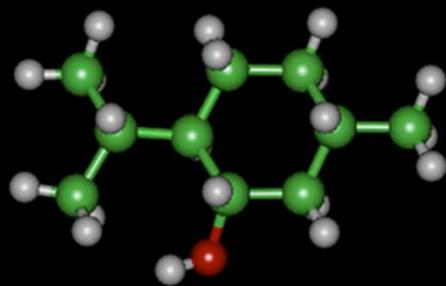
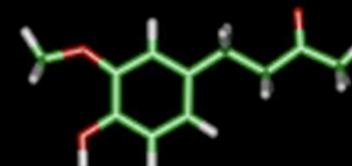
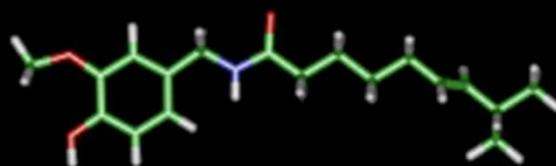
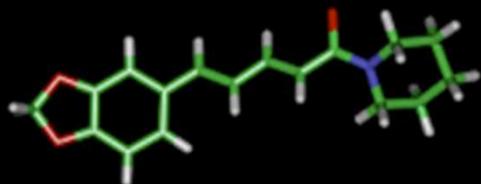
Umami



Acido glutammico



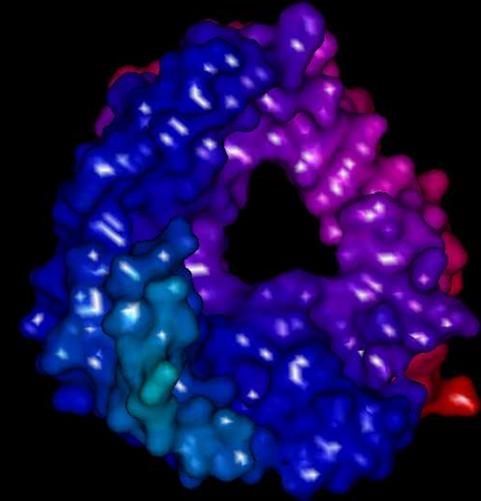
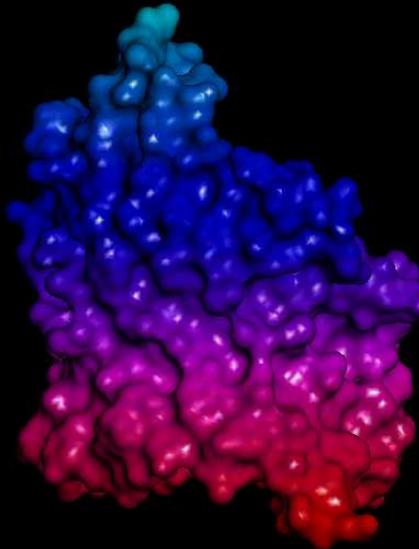
Fresco e Piccante (Hot)



Porine: quale funzione ?



porina



Peter Agre
Premio Nobel per la
Chimica 2003

