Meetings International SciTechnol

Faizah Salah Aljohani et al., J Pharm Sci Emerg Drugs 2018, Volume: 6
DOI: 10.4172/2380-9477-C7-023

International Conference on
NUTRITION & OBESITY PREVENTION
&
International Conference on
GLOBAL MEDICINAL CHEMISTRY & GPCR SUMMIT

October 01-02, 2018
Las Vegas, USA

Interaction of $Eu(fod)_3$ with coordinated cyanide in an analogue of the sub-site of [FeFe]-hydrogenase

Faizah Salah Aljohani[1, 2] and Christopher Pickett[2]
[1]Taibah University, Saudi Arabia
[2]University of East Anglia, UK

Second coordination sphere interactions of metal centres involving hydrogen bonding, ion-pairing or dipolar bonding can play an important role in determining the physical and chemical properties of molecular and biomolecular systems. For example, the redox potentials of cubane iron-sulfur clusters in a redox protein or enzyme can range between -700mV and -400mV versus the standard hydrogen electrode as a consequence of the nature of the second-coordination sphere environment. Whilst this is largely explained in terms of hydrogen-bonding ionic, dipolar or other interactions may have a role in this. This study examines second coordination sphere interactions of coordinated cyanide in a model for the diiron subsite of [FeFe]-hydrogenase. The natural subsite in its protein environment catalyses hydrogen evolution (or uptake) at very fast rates ca 104 s-1 near the reversible potential of the H+ /1/2 H2 couple but such rates have yet to be attained in model systems. Controlling the electronic and geometric properties of synthetic diiron subsites by hydrogen bonding or other interactions might provide a means of attaining the turnover rates of the natural system. This work takes some first steps towards introducing second coordination sphere interactions to modify subsite properties. A metal Lewis acid Eu(fod)3 is shown to bridge to CN ligands in the model subsite to change its spectroscopic and electrochemical behavior.

Biography

Faizah Salah Aljohani has completed his PhD from University of East Anglia. She worked under supervised of Professor Christopher Pickett. Now, she works as Assistant Professor of Inorganic Chemistry at Taibah university in Saudi Arabia.

m.sfm@hotmail.com

Notes: