STORAGE AND DELIVERY OF MEDICAL GASES USING ZEOLITES AND METAL-ORGANIC FRAMEWORKS

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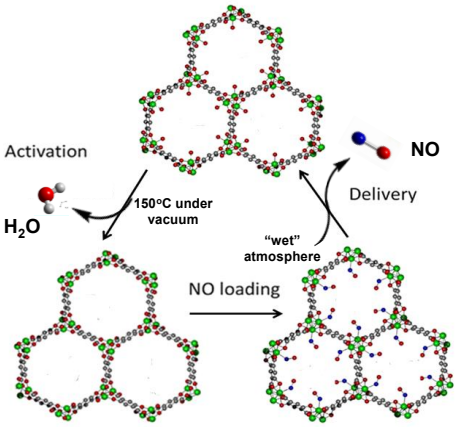
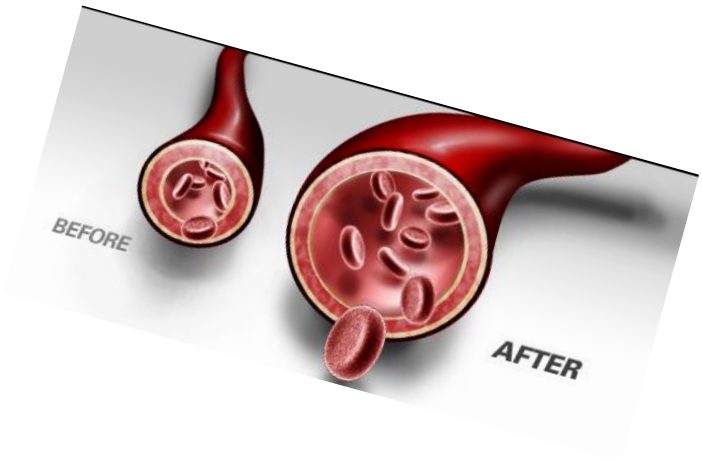
ABSTRACT

It is quite a paradox that several gases that we normally think of as extremely toxic are in fact vital in mammalian biology (in the right amounts). Nitric oxide (NO) is the most well-known of these gases – the discovery of its activity in the cardiovascular system led to the Nobel Prize for Medicine and an explosion of research in NO biology and chemistry. Recent research has, however, shown that other 'toxic' gases also have tremendous potential for use in therapeutic applications. In all cases the toxicity of the gas places great constraints on how the gases can be delivered, especially if any therapies are to be applied outside the clinic. One method of developing suitable therapies is to devise methods by which the gases can be safely stored in porous solids that deliver the gas only when required and only in safe amounts. In this presentation I will explain how we are using both zeolites and metal organic frameworks as adsorbents and storage materials for several gases, including NO, and how we are characterising the materials to understand how the gases adsorb and are released.





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