

Studying the DNA-binding specificities of key hypoxia regulators

November 26, 2018 – Hypoxia, a low level of oxygen, is sensed within cells by hypoxia-inducible factor (HIF), which binds to DNA to induce the expression of multiple hypoxia response genes. There are two types of HIF, HIF-1 and HIF-2, which recognize the same short DNA sequence found many times throughout the genome. Investigation by James Smythies and Min Sun from David Mole's and Ludwig Oxford's Peter Ratcliffe's labs discovered discrete binding patterns of these factors to a selection of these target DNA sequences. These findings, published in [EMBO Reports](#), reinforce the idea that HIF-1 and HIF-2 function independently in response to hypoxia and open the possibility of therapeutically targeting one HIF type to modulate a distinct activity, for example in cancer treatment.