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# Biomimetic mineralisation of periodate oxidized glucose oxidase

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Glucose oxidase (GOx) is an enzyme that belongs to a group of oxidoreductases. This enzyme catalyzes the oxidation of glucose to gluconic acid using molecular oxygen as an electron acceptor. Glucose oxidase contains carbohydrates in its structure, most often mannose and glucose (11-13%)<sup>1</sup>. Durability of GOx in harsh conditions can be enhanced by encapsulation within metal-organic frameworks via a process called biomimetic mineralisation. We demonstrate that chemical modification of carbohydrate parts on the protein surface by periodate oxidation is an effective method for control of biomimetic mineralisation by zeolitic imidazolate framework-8 (ZIF-8). Obtained GOx-ZIF-8 biocomposite had the higher half-life at 65°C, and higher specific activity than native GOx.

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## References

1. Bankar BS, Bule VM, Singhal SR, Ananthanarayan L. Glucose oxidase – An overview. *Biotechnol Adv* 2009;27:489-501.