



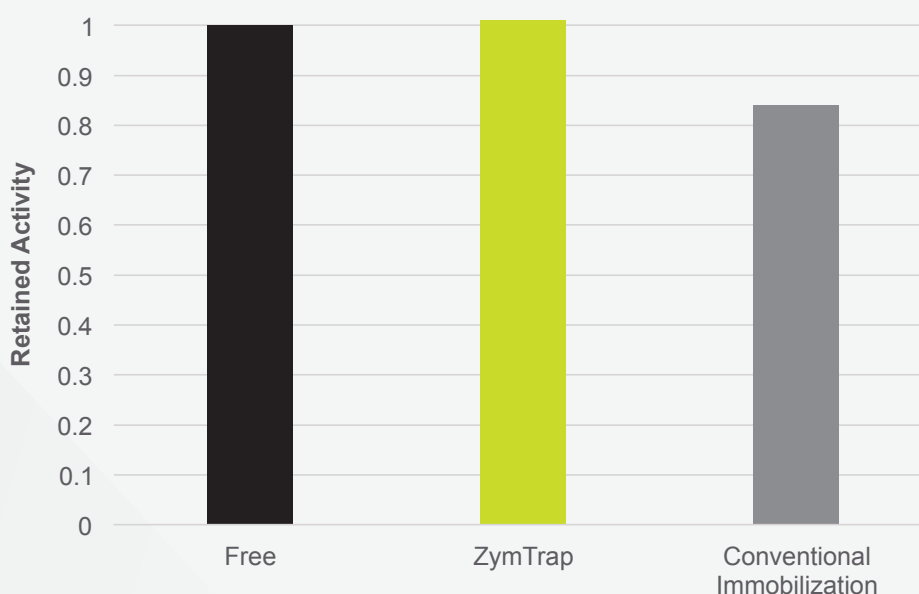
CASE STUDY

THE IMMOBILIZATION OF
CARBONIC ANHYDRASE

Carbonic anhydrase (EC 4.2.1.1) is a ubiquitous metalloenzyme present in every organism, and catalyzes the reversible conversion between carbon dioxide and bicarbonate (HCO_3^-). It is among the most efficient enzymes known [1] and serves multiple physiological roles including CO_2 exchange, pH regulation, and HCO_3^- secretion [2]. Carbonic anhydrase has potential industrial applications in CO_2 sequestration and calcite production [3]. Its industrial relevance has only increased in recent years as industrial and agricultural carbon emissions pose major environmental concerns worldwide.

Zymtronix has recently demonstrated 101% retained activity of bovine carbonic anhydrase immobilized on its ZymTrap™ platform relative to free counterpart (Figure 1) [4]. In comparison, carbonic anhydrase immobilized on ordinary calcium alginate beads retained 40–80% activity relative to free enzyme [3].

Figure 1 - Carbonic anhydrase performance



REFERENCES

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