

The novel Fh8 fusion tag: a comparison with other fusion systems for efficient soluble overexpression and purification of recombinant proteins in *Escherichia coli*

Costa SJ, Coelho E, Oliveira CM, Almeida A, Castro A, Domingues L

The Fh8 fusion system (Hitag®) was initially used to increase protein expression in *Escherichia coli*, and it is now established as an effective solubility and purification tag for recombinant protein production in this host cell. The Fh8 was ranked among the best solubility enhancer tags as Trx, MBP or NusA, being easily removed from the target protein without compromising its solubility. The Fh8 tag was also successfully used as a purification handle taking advantage of its natural calcium-binding properties and offering mild conditions for hydrophobic interaction chromatography. The Fh8's low molecular weight and its dual solubility enhancing and purification functionality make this tag a valuable tool for efficient recombinant protein production in *E. coli*.