Labeling of a molecule e.g. a protein with a biotin / desthiobiotin moiety (biotinylation/desthiobiotinylation) is routinely performed for its subsequent affinity purification via streptavidin agarose or the detection via fluorescent or HRP-labeled streptavidin.

Due to the extremely high affinity of biotin towards streptavidin ($K_d = 10^{-15}$ M), the biotinylated molecule/streptavidin-interaction is essentially irreversible under physiological conditions[1].

Desthiobiotin however, binds less tightly to streptavidin and desthiobiotinylated molecules are therefore easily eluted from the complex in the presence of excess biotin[2].

Selected References