

# Vibrational Spectroscopy as a Tool for Examination to the Secondary Structure of Metal-labeled Trastuzumab Immunoconjugates

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## Abstract

Infrared and Raman spectroscopy are effective techniques that allow collecting information about secondary structure of proteins, including antibodies.

Trastuzumab, antibody used in our study was in a freeze-dried form, conjugated with different bifunctional chelators and linked with the stable isotopes of lutetium and yttrium. The characterization of the final immunoconjugates showed no significant changes in the structure demonstrated by the presence of the amide bands characteristic for a  $\alpha$ -helices and  $\beta$ -sheets structures.

These methods could be applied during the production of the antibody freeze-dried kit formulations for the labeling with the radioactive isotopes.

## Keywords

Trastuzumab, Freeze-drying, Infrared spectroscopy, Raman spectroscopy, Bifunctional chelators, Yttrium and Lutetium.