

## Protein Engineering in Biopharmaceutical Research

임성인<sup>†</sup>

부경대학교

(alupsaker@gmail.com<sup>†</sup>)

Over the past two decades, pharmaceutical industry has witnessed a growing number of biomolecular entities in competition with synthetic molecules. Remarkably, seven among Top10 Best Selling Drugs are biologics such as antibody and fusion proteins. Excellence in target specificity and safety margin over chemical drugs are fueling such advancement. In particular, antibody is leading the growth of biopharmaceutical sector owing to its uniqueness in physicochemical and biological characteristics that allow stable industrial manufacturing and target-customized modulation of efficacy.

To challenge clinical unmet needs still there, antibodies in non-native formats featuring enhanced efficacy and reduced toxicity are expected to emerge in the coming era. Protein engineering techniques including bioconjugation and self-assembly have been applied to generate non-native antibodies like an antibody-drug conjugate and a heterodimeric bispecific antibody with successful clinical outcome.

In this presentation I will review the current status of antibody therapeutics, and discuss the emerging technologies that further expand therapeutic application of antibodies and other biologics as well.