

3タンパク質断片相補による均相系での低分子の非競合発光免疫測定系の構築

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Analytical Chemistry

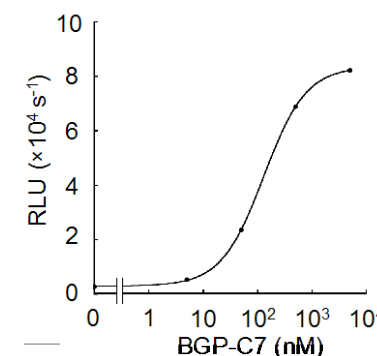
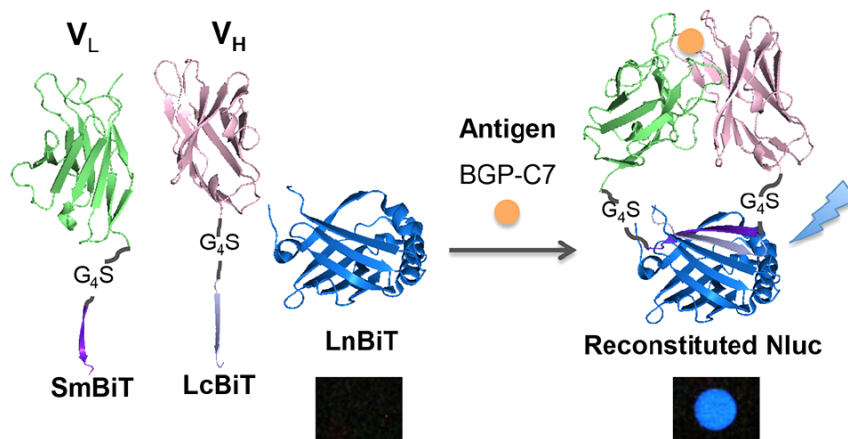
90(5) 3001-4.

Published online 15 Feb. 2018

DOI: 10.1021/acs.analchem.7b05140

Homogeneous noncompetitive luminescent immunodetection of small molecules by ternary protein fragment complementation

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日経産業新聞

2018/3/13

東工大が新手法
血液検査に応用

たんぱく質高感度検出

オープンサンドイッチ免疫測定法(OS-IA)は、競合法と比較して低分子抗原を高感度かつ広い濃度域で検出できる。しかし、従来のELISA系では測定に時間と労力を要する問題があった。今回、明るい発光酵素Nanoluc由来ペプチドタグを用いた3分子間相補を原理とする、洗浄を要しないホモジニアス測定系を構築し、非競合的なOS-IAの特性を生かしつつ、簡便・迅速かつ肉眼での簡便検出も可能な利便性の高い測定法とすることに成功した。

Open-sandwich immunoassay (OS-IA) can detect small molecules with high sensitivity and wide working-range compared with competitive assays. However, conventional heterogeneous assay format such as ELISA was labor-intensive and time-consuming. In the present study, we developed a homogeneous OS-IA based on ternary protein fragment complementation, using the peptides derived from a bright and stable luciferase Nanoluc. As a result, we could detect a small antigen with high sensitivity and wide working-range. Furthermore, it was easy and rapid to perform, and signal could be detected by a naked eye.