日本電気泳動学会 電子メール通信 No. 138

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【お知らせ_Journal of Electrophoresis Vo. 64 (2020) No.1　J-STAGE掲載】

日本電気泳動学会会員の皆様

本日、Journal of Electrophoresis Vo. 64 (2020) No.1 (J-STAGE 電子版)に、以下の２報の論文が掲載されましたのでお知らせ致します。
（https://www.jstage.jst.go.jp/browse/jelectroph）

J Electrophoresis. 2020; 64:7-11.

Title: A dot-blot-staining method for detecting phosphoproteins with a Phos-tag Aqua fluorescent dye

Authors: Emiko Kinoshita-Kikuta, Keisuke Akayama, Eiji Kinoshita, Tohru Koike

Abstract: We describe a method for detecting phosphoproteins by dot-blot staining with a Phos-tag Aqua fluorescent dye. By using the method, three types of in vitro protein kinase assays for visualizing Tyr-, His-, and Asp-phosphoproteins, respectively, were performed. The staining procedure, which requires less than 2.5 h to complete, is conducted under conditions of neutral pH that are particularly advantageous for detecting labile His- and Asp-phosphoproteins. This method promises rapid and easy detection of phosphoproteins, and should be useful in high-throughput profiling of in vitro kinase activities or in vitro kinase inhibition.

J Electrophoresis. 2020; 64:13-17.

Title: Gel electrophoresis for phosphorylated proteins: a brief introduction

Authors: Rei Noguchi, Yooksil Sin, Tadashi Kondo

Abstract: Protein phosphorylation is a key mechanism that regulates cellular physiological functions such as proliferation, migration, cell cycle progression, apoptosis, and differentiation. Aberrations in kinase activity and subsequent dysregulation of protein phosphorylation occur in the process of

carcinogenesis and cancer progression and are considered to be therapeutic targets and biomarkers in oncology. Gel electrophoresis has versatile utility in the study of protein phosphorylation. Phosphorylated proteins can be enriched prior to gel electrophoresis, and the proteins separated by gel electrophoresis are visualized by colorimetric methods or western blotting with antibodies, which specifically detect phosphorylation. Phosphorylated proteins migrate differently from non-phosphorylated proteins in gels containing substrates with affinity for phosphorylation. All these methods can be combined in multiple ways, generating unique data from different viewpoints. The identification of separated proteins can be achieved by mass spectrometry, making it possible to integrate protein and genetic data. Peptide array allow the evaluation of kinase activity in heterogeneous samples. As protein phosphorylation and kinase activity are under the regulation of multiple mechanisms and their statuses influence the structures and functions of the other proteins, a multidisciplinary approach is required, and gel electrophoresis will play an important role in the study of protein phosphorylation.

なお，日本電気泳動学会では学会英文機関誌（Journal of Electrophoresis）への論文投稿を広く募集しております。会員の皆様の積極的なご投稿を期待しております（会員であれば、投稿料は無料です)。

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