

Press Release

Journal Article from Rigaku Explores Protein Expression for X-ray Structure Analysis

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The current edition of the Rigaku Journal features latest installment of its Introduction to single crystal X-ray analysis series

January 19, 2017 – Tokyo, Japan. [Rigaku Corporation](#) has published a new article examining protein structure determination in the latest edition of the [Rigaku Journal](#), which is available for download from the company's global website.

The Rigaku Journal is a semiannual journal published by Rigaku Corporation to serve the X-ray analysis community. It is a scientific and technical journal, publishing articles relating to a wide range of X-ray diffraction and fluorescence applications.

The tenth installment in the series “Introduction to Single Crystal X-ray Analysis” is featured in [Volume 32, No. 2](#) of the Journal and is entitled, “Protein expression for X-ray structure analysis.”

When performing structure analysis, the first challenge is to establish an expression system (a system specifically designed for the production of a desired gene product). The article highlights the characterization of individual expression systems, including Escherichia coli (E.coli), yeast, insect cells, animal cells, and cell-free systems.

The focus of the article is on procedures for establishing an E. coli expression system. The E. coli expression system utilizes expression vectors — constructs designed for gene expression in cells and used for the production of proteins.

The article details the process for establishing vectors for the E. coli expression system, the selection of E. coli strains and introduction of the expression vectors into the E. coli. Procedures for the confirmation and optimization of expression conditions are also presented. There are many challenges in obtaining proteins suitable for use as starting materials for structure analysis. For the E. coli expression system, various tools, vectors and host strains are available and using the procedures described, high expression levels can be readily achieved at low cost.

Complete issues of the Rigaku Journal or individual articles are available for download at no cost at <http://www.rigaku.com/en/downloads/rigaku-journal>.

About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,400 people in the manufacturing and support of its analytical equipment, which is used in more than 90 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.

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