

Editorial Preview: July 2016

07/05/16-DNA cloning technologies-restriction enzyme free cloning

There are plethora of cloning methods available to researchers. Traditional restriction enzyme digestion is a standard but as the need to be able to generate and screen larger quantities of clones is becoming a more commonplace practice in the molecular discovery workflow. Some techniques are employing PCR and even CRISPR technologies. This article will review the latest advances in methodologies and reagents (ie., Gibson assembly, In-Fusion or Gateway cloning or AQUA, SLiCE) being offered commercially as well as being recently reported in the literature.

07/07/16-Clinical NGS, 2016

Next-gen sequencing is being used in the clinic to follow the spread of infections, and pinpoint the genetic basis for inherited diseases. By identifying the key biomarkers and targets involved in diseases, it has enabled a better understanding of the molecular mechanisms-which can ultimately lead to better diagnosis and treatments. Illumina created GRAIL, a company specifically focused on cancer screening from a simple blood test is leveraging the power and information of NGS. This article will focus on the efforts by clinics and hospitals as well as academic efforts supporting these sites (ie., BROAD institute) that are making NGS part of the workflow in their therapeutic studies. What are main reagents/assays/instrumentations that these clinicians and medical researchers using

07/12/16-Maximizing therapeutic protein expression

There is a great deal of interest in therapeutic proteins (ie., antibodies) as potential treatments. Identifying methods that will generate the greatest yields of the therapeutic protein of interest is of key importance. This article will focus on the options and key factors to consider when selecting an expression systems-specifically the vectors, cloned fragments and cell lines that assist researchers in obtaining the greatest expression of their proteins. Upstream bioprocessing researchers will share their tips and tricks for maximizing expression.

07/14/16- Whole body small-animal imaging

Whole-body imaging is used to detect and anatomically localize molecular tracer molecules, whether radioactive or optically labeled, within an animal's body. Each year, Biocompare covers the latest options in terms of instrumentation and imaging modalities from various tool providers. This article will provide an overview of the latest instrumentation and reagents used for pre-clinical research applications.

07/19/16-pH meters-and bioprocessing

When monitoring the pH of a buffer and liquid solutions used in the lab, researchers turn to a pH meter. In the case of protein production, slight changes to the pH of a solution can impact the expression or purification of a target protein. Being able to monitor, record and document the pH of the sample preparation is one important variable in the workflow. This article will focus on pH meters/monitors are integrated in the protein bioprocessing workflow-particularly for the downstream process development

and manufacturing researchers and the tools/advances provided by tool providers to assist them in the process.

07/21/16-Screening genetically modified plants

As a means to create superior crops, various molecular biology and cloning techniques are employed to genetically engineer plants. As with any subject that is genetically modified, a means or test to screen for the appropriate modification is needed. This is where PCR and NGS have become more widely adopted with molecular botanists. This article will focus on some of the latest molecular techniques and tests that are used to screen genetically modified plants.

07/26/16-RNA prep kits

There is a lot of interest in studying the functions of non-coding and small/micro RNAs (RNAs that are not translated to make a protein product) as they have been shown to have key regulatory roles in disease states such as the onsets of many cancers. Having the ability to isolate these non-coding RNA species specifically from patient samples (ie., blood, plasma, fluids) is critical to gaining a better understanding of their regulatory roles. This article will focus on the latest advances in reagents, kits and methodologies used to isolate non-coding RNAs.

07/28/16- Glycomics

Glycomics is the systematic study of all glycan (sugar) structures in an organism. Glycans have been shown to have regulatory roles in cellular signaling, immune response and also involved in various disease states. Chromatography and mass spec has been the primary tool to look at this complex molecules. This article will focus on the applications and assays that have been developed by tool-providers or academic labs to better characterize understand how glycans are regulating cellular events.