

New Tools for HT Engineering, Cloning & Expression of Multispecific Next-generation Antibodies

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Next-generation antibodies promise greater clinical efficacy and safety for a variety of severe human diseases. As a consequence, today's biotechs are faced with generating and testing vastly increased numbers of diverse alternative antibody molecule formats. A significant bottleneck is the establishment of high-throughput molecular biology and cloning processes required for systematically generating and validating DNA constructs to express the desired molecules. Here, we present a new workflow system for addressing the specific challenges for these antibody molecules produced in large-scale engineering campaigns. The diversity of new molecule formats (e.g. bi- and n-specifics: KinH BsIgG, Fab-scFv, IgG-scFv, Dual V domain IgG, etc.) and relevant cloning strategies pose workflow challenges that require tailored in silico cloning and automation tools for molecule design, DNA synthesis and verification; supporting expression and purification sample management; as well as an integrated processing of assays and analytics testing results. We present concrete examples of next-generation antibody workflows using the Genedata Biologics™ platform, including the high-throughput engineering of bispecifics.

Genedata Biologics™ is the first fully integrated workflow platform for comprehensively supporting the biologics R&D process, including that of next-generation antibodies. The focus of the platform lies on supporting complex laboratory workflows around molecule generation, with its built-in biologics-specific business logic, integrated data management and automation.

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