Taking care of business: new drivers for crystallographic structure- and fragment-based drug discovery

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The past 15 years has witnessed an unprecedented growth in instrumentation and automation for protein X-ray crystallography as well as in all stages of the entire *gene-to-structure* process. This was sparked and primarily driven by the structural genomics and high-throughput structural biology efforts in USA and around the world. Outcomes include methods, processes, protocols, and instrumentation for high-throughput protein expression, purification, crystallization, structure determination, refinement, and analysis. Benefits have by now percolated through much of industry and academia for structural biology and structure-based drug discovery leading to vast gains in efficiency, productivity and costs at all levels.

With foundational expertise in structural genomics and high-throughput protein X-ray crystallography, Accelero Biostructures is translating these developments for novel high-throughput structure- and fragment-based drug discovery focused on unique applications and technology. We will present historical perspectives that have led to giant leaps in the development of instrumentation and automation; some of the key outcomes; current status, future resources and applications of automation and instrumentation; as well as our current and future programs on platforms and pipelines for drug discovery including cryo-crystallography, room temperature crystallography and serial crystallography for structure- and fragment-based drug discovery.