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Automation and synthetic biology simplifying complexity

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In the last few years, the branch of biology (or of engineering, as some says) called synthetic biology has definitely taken the center of the stage. This oxymoronic branch is quickly spreading from agriculture to medicine, from students to Nobel Prize laureates, from engineers to molecular biologist and at every step increasing sophistication and complexity. The complexity stems both from intrinsic sophistication of the biological circuits that wants to be mimicked or created and also from the large amount of steps that have to be physically performed to transform an *in silico* circuit to a real, organic one. While the complexity at scientific level can be only tamed by continuous development of knowledge (and its spreading) and the development of more powerful software and deeper databases, the complexity at practical level can be tremendously decreased by the introduction of automation procedures. Automating tasks which requires high manual skills while being of limited intellectual complexity (think of separating interphases), or tasks that requires extremely high precision and management of ultra-low volumes (think of low volumes qPCR), or highly repetitive ones and at high frequency (think of colony picking or screening) can only improve the outcome with respect to manual performance. Automation does not only improve the quality of the data\results of a given task but can also bring other advantage like freeing skilled personnel for more important tasks, reduce burden of labor, scale up processes, standardize operations within the laboratory, examples will be given in the presentation.

Biography

Guido Cimoli completed his Master's degree in Biology at University of Genoa and worked as a Researcher at National Cancer Institute. He completed his PhD in Molecular Pharmacology at University of Pavia. He worked as a Bio-pharma Application Specialist and Project Leader at Tecan Group Ltd., from February 2004 to December 2007. He is currently responsible for the sales development for automation in Europe and Middle East.

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