CONVERGE™ - INTEGRATED DATA ANALYSIS & MANAGEMENT SYSTEM FOR NGS & CE

Narasimhan Rajagopalan, Jie Deng, Makesh Karpagavinayagam, Sharada Vijaychander, Srinivas Goli, Priti Sabadra, Ravi Gupta, Hee Shin Kim, Human Identification Division, Thermo Fisher Scientific

As forensic laboratories process greater numbers of routine and difficult samples, data analysis & management solutions must match operational needs. The advent of NGS has only exacerbated the challenge since laboratories are now asked to analyze & store data that is orders of magnitude more than traditional workflows. LIMS and other data management solutions may provide some benefit to their users, but they are often too narrow and limited for the respective need.

Converge is a comprehensive sample-to-answer platform that allows users to integrate with and manage data from a range of instrument systems. When combined with the Applied Biosystems™ Precision ID NGS system for human identification, which includes the Ion Chef and Ion S5, Converge enables the fastest, forensically relevant NGS workflow solution on the market today. With Converge, labs can now analyze & manage both Capillary Electrophoresis & NGS data in single software. With minimal user interaction, automated data processing and intuitive interfaces, customers can analyze and review results faster and easier.

Converge enables automated data integration with S5, and performs genotype calling & quality checking for STRs, SNPs and micro haplotypes. Users can obtain Random Match Probabilities for identity SNPs, STR genotypes that are compatible with the latest ISFG recommendations, estimate of number of contributors, quality flags to indicate confidence in the results, concordance with control samples and determination of male presence in a sample. The software is also very flexible and allows users to define their own analysis parameters, kit definitions and quality thresholds. Users can review & edit the results and save or export them for downstream processing.

Converge also allows users to import STR profiles from GeneMapper® ID-X and compare it with NGS data output to assist with NGS evaluation and validation studies, all in one platform. The Kinship analysis can also be performed on NGS data and with more loci, it provides higher statistical significance. The ability to define various hypothesis & likelihood calculation models coupled with the ability to work with both CE & NGS results makes it a powerful tool for paternity & kinship testing.
The scalability, flexibility and inter-operability of Converge make it unique software that truly provides a comprehensive data analysis & management solution for human identification laboratories.