General Information on AutoFLOW

AutoFLOW

Automation of Flow Cytometric Analysis for Quality-Assured Follow-up Assessment to Guide Curative Therapy for Acute Lymphoblastic Leukaemia in Children

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Motivation

Acute Lymphoblastic Leukaemia (ALL)
- Is the most frequent leukaemia entity in children and adolescents.
- Disease relapse remains the number one cause of treatment failure (15-20% of paediatric patients).

Flow Cytometry (FCM)
- Is a useful methodology, because it is widely available and applicable to most patients.
- Bottleneck: While data preparation is straightforward, data analysis and interpretation requires much time, high costs and level of skill.

AutoFLOW Objectives

- The overall objective is to safely apply the FCM-Minimal Residual Disease (MRD) methodology in a growing community of diagnostic laboratories.
- AutoFLOW aims at developing an objective and automated tool for multi-parameter FCM data analysis with robust and reliable MRD quantification.
- Ready-to-use FCM-based MRD-assessment tool for the daily clinical practice for patients.
- Assessment of FCM-MRD in samples.
- Reduce subjectivity caused by manual operator gating; increase result comparability and reproducibility through automation and standardization.
- Incorporation of the anonymizing algorithm.

Methodology

- Adopt machine learning and pattern recognition methods (clustering and supervised learning methods).
- Software for automated FCM-MRD quantification.

Conclusion

- Automated Flow Cytometric analysis of Acute Lymphoblastic Leukaemia (ALL)
- Ready-to-use FCM-based MRD-assessment tool for daily clinical practice for patients
- Reduce subjectivity
- Automated FCM-MRD analysis will correctly classify cell populations
- Increase result comparability and reproducibility through automation and standardization