Microbead Surface Nucleic Acid Melting Curve Analysis

The MBmca package authors

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Contents

The MBmca package was developed for the analysis of melt curve data. Specifically, algorithms were developed for the analysis of the melting behavior of nucleic acid hybrids on the surface of microbeads.

However, the software is also useful for the analysis of data from melting curves of qPCRs. The *diffQ2()* function approximately calculates the maximum and minimum of the second derivative. These values can also be used as quantification points. For example, the maximum of the second derivative is a frequently used parameter in determining the Cq value of qPCRs. A further application can be the analysis of data from opaque isothermal amplifications.

Details on the application of the software are in the publications

- Rödiger, Böhm, and Schimke (2013)
- Rödiger et al. (2015)

described.

The software has been lost in conjunction with the VideoScan platform. This is a fully automatic multispectral fluorescence microscope for the multiplex analysis of biomarkers (Rödiger et al. 2013). Applications of the platform can be found in personalized medicine and life sciences (Rödiger et al. 2014; Willitzki et al. 2012).

Over the years, a lot of knowledge has accumulated on the analysis of data from quantitative PCRs and melting curves. Thus, we could show that the use of filters and smoothing functions affect the parameter estimation of amplification curves (Spiess et al. 2014). The MBmca package also applies filters and smoothing functions to melt curves. This should be taken into account when using the software.

References

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