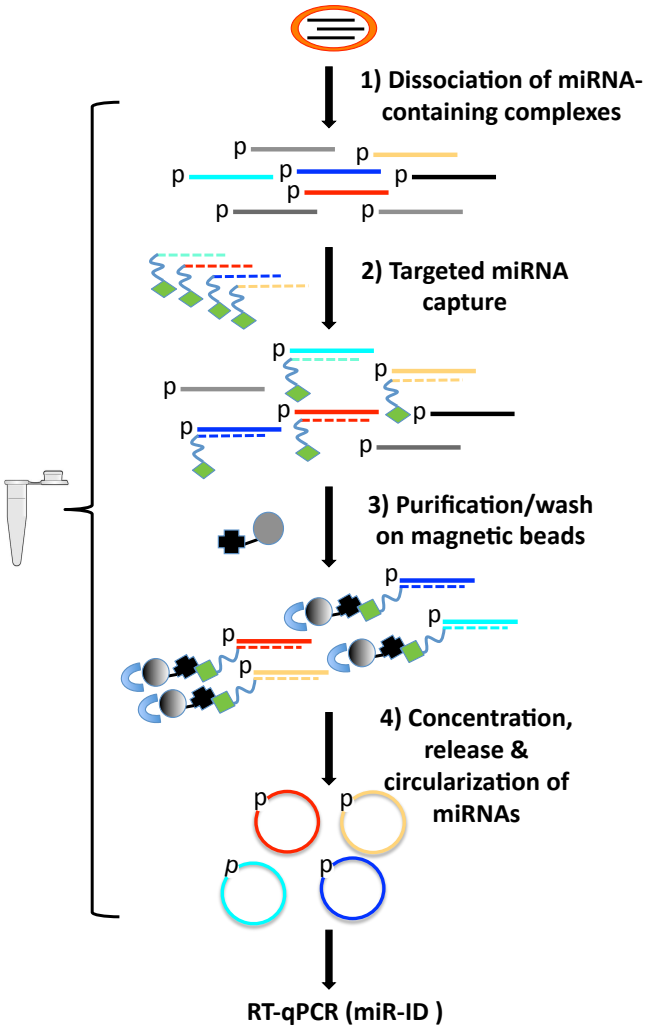
somagenics

RNA Detection

miR-Direct®: Sensitive and Specific microRNA Quantification from serum or plasma

MicroRNAs (miRNAs) and their isoforms/isomiRs are of increasing interest as potential biomarkers. The ability to accurately quantify miRNAs from biofluids is crucial to realizing their potential in early disease detection, diagnosis, drug development, and selection of follow-up treatment. SomaGenics' miR-Direct® method overcomes commonly encountered problems of inconsistent RNA recovery from samples, real-time qPCR impacted by sample-born inhibitors, and by low miRNA abundance in blood.

Technology overview

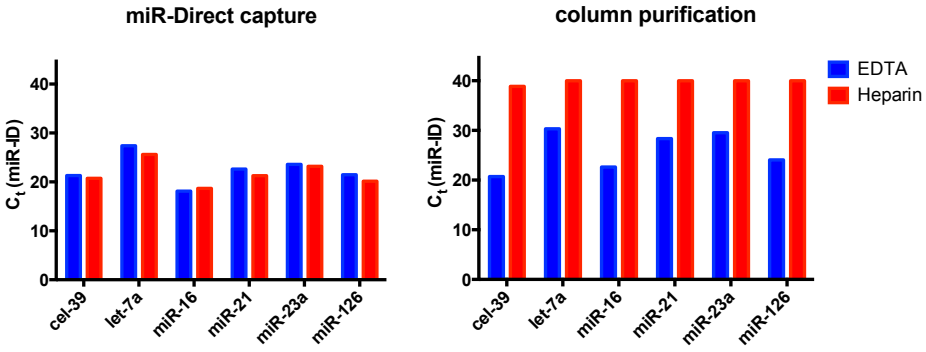


- No solvent extraction or column purification
- Front-end processing is performed in a single tube
- miRNA concentration without total RNA purification
- miRNA capture from variable input volumes (25 to 400 µl)
- All steps until qPCR can be multiplexed for all miRNAs of interest

- RT-qPCR by miR-ID®
- RT primer alignment versatility allows for optimal efficiency and discrimination between single-nucleotide polymorphisms at any location
- miR-Direct® has a broad dynamic range of detection

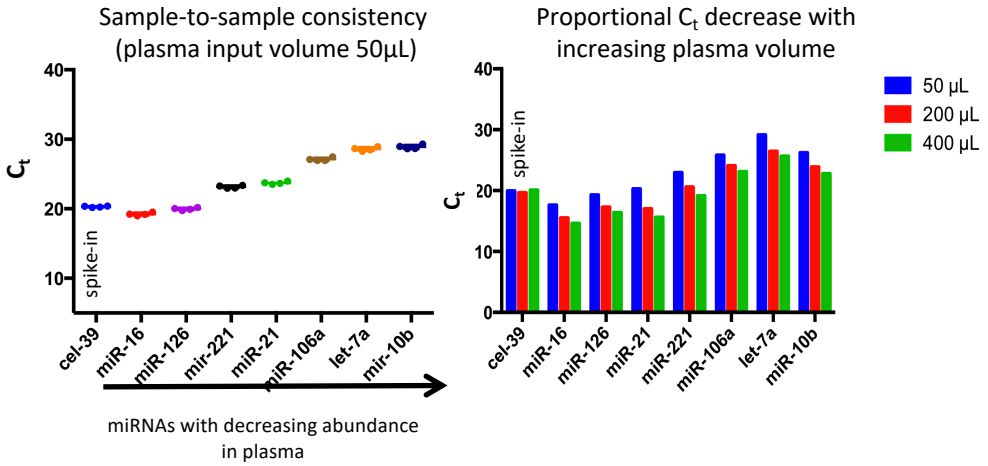
In the miR-Direct workflow, miRNAs are released from plasma/serum samples, captured, washed, and then assayed by quantitative RT-qPCR using SomaGenics' circularization-based miR-ID® assays (included in miR-Direct® kits.)

miR-Direct® eliminates qPCR inhibitors



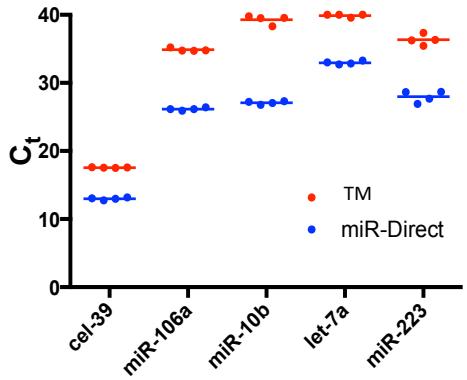
Plasma from one donor was collected in tubes containing EDTA (blue) or heparin (red). miR-Direct® allows for miRNA quantification in heparin-containing plasma, while a conventional assay using isolated total RNA from columns fails. Heparin, a widely-used anticoagulant for blood plasma collection, is a known inhibitor of qPCR enzymes. Because heparin is a a highly negatively charged molecule, it is often co-purified in column-based purification kits.

miR-Direct® detection of miRNAs from plasma is quantitative and scalable



miR-Direct® has high sample-to-sample consistency (left graph). Measured miRNA levels increase proportionately to the input plasma volume (right graph) with an approximate 2-Ct decrease for every 4-fold increase in plasma volume.

miR-Direct® reliably detects miRNA in urine samples



miR-Direct® detects miRNAs with higher sensitivity than a competitor kit with bead-based miRNA capture followed by RT-qPCR. Urine samples from 4 healthy volunteers are analyzed. Ct values over 37 are considered background level.