Nová pravidla pro interpretaci nízkých positivit MRN

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MINIMAL RESIDUAL DISEASE

The gray area of RQ-PCR-based measurable residual disease: subdividing the "positive, below quantitative range" category

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MINIMAL RESIDUAL DISEASE

Analysis of measurable residual disease by IG/TR gene rearrangements: quality assurance and updated EuroMRD guidelines

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Minimal/measurable residual disease (MRD) diagnostics using real-time quantitative PCR analysis of rearranged immunoglobulin and T-cell receptor gene rearrangements are nowadays implemented in most treatment protocols for patients with acute lymphoblastic leukemia (ALL). Within the EuroMRD Consortium, we aim to provide comparable, high-quality MRD diagnostics, allowing appropriate risk-group classification for patients and inter-protocol comparisons. To this end, we set up a quality assessment scheme, that was gradually optimized and updated over the last 20 years, and that now includes participants from around 70 laboratories worldwide. We here describe the design and analysis of our quality assessment scheme. In addition, we here report revised data interpretation guidelines, based on our newly generated data and extensive discussions between experts. The main novelty is the partial re-definition of the "positive below quantitative range" category by two new categories, "MRD low positive, below quantitative range" and "MRD of uncertain significance". The quality assessment program and revised guidelines will ensure reproducible and accurate MRD data for ALL patients. Within the Consortium, similar programs and guidelines have been introduced for other lymphoid diseases (e.g., B-cell lymphoma), for new technological platforms (e.g., digital droplet PCR or Next-Generation Sequencing), and for other patient-specific MRD PCR-based targets (e.g., fusion genes).

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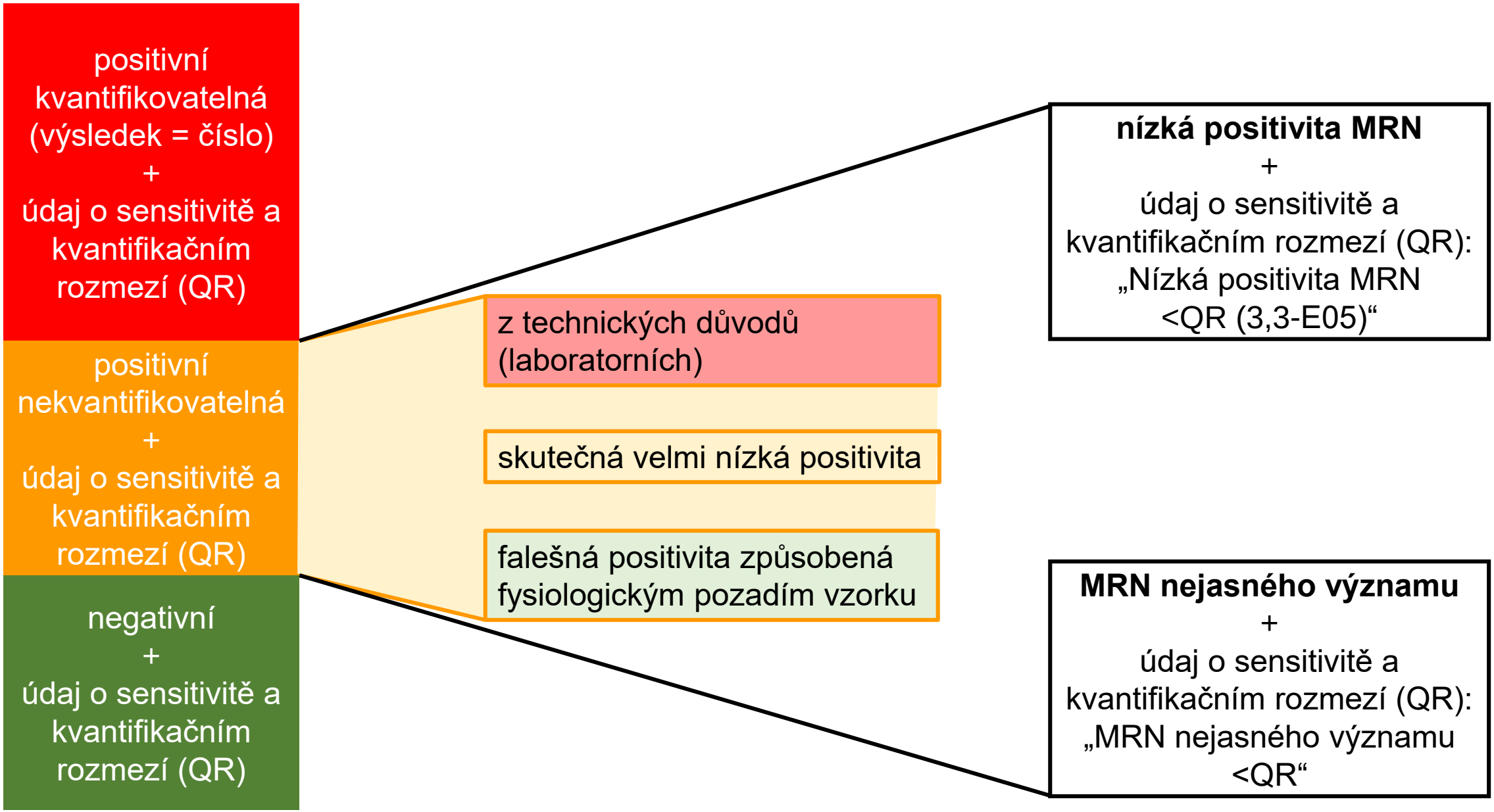
Výsledky „klasické“ detekce MRN pomocí qPCR



Ověření MRN nejasného významu pomocí NGS

qPCR

MRN nejasného významu
+
údaj o sensitivitě a kvantifikačním rozmezí (QR):
„MRN nejasného významu <QR“

NGS

skutečná velmi nízká positivita → **positivní**

falešná positivita způsobená fysiologickým pozadím vzorku → **negativní**

nedostatečně citlivé