

"Sensitivity and Specificity of a Gene doping test detecting transgenic DNA on a single molecule level in peripheral blood probes"

P. Simon, U.M. Lauer, M. Bitzer (Medical University Clinic Tübingen, Tübingen, Germany)

Results and Conclusions

Our spiPCR is able to detect a variety of candidate transgenes for gene doping with extremely high sensitivity and specificity in vivo. It is a direct detection technique. Initial handling of the blood probes and taking of blood probes does not require a workflow that method differs from the one that is already used for taking blood probes for doping controls in athletes. Small amounts of blood are principally sufficient to control for more than 10 different gene doping candidate genes with ultra-high sensitivity. The development of a multiplex approach that is able to detect several different gene doping candidates reduces cost intensive laboratory steps.

The test has a maximum deterrent effect, since we show that long-term detection for several weeks and possibly for several months is possible.