

New biomarker-based method for establishing an individual physical activity programme reducing the individual risk to develop a cardiovascular disease

- **SCHEDA**
- **APPROFONDIMENTI**

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A German university developed a method to use short non-coding ribonucleic acids (miRNAs) to devise physical activity programmes tailored to individual subjects to prevent them from getting a cardiovascular disease. For the first time individual molecular predispositions can be used to optimize the training. The university offers license agreements to diagnostic industry.

Regular physical activity is a cornerstone for the prevention of cardiovascular disease. Currently, physical activity is performed following the one-size fits-all principle. However increasing knowledge on underlying protective mechanisms allows individual optimization of exercise training regimes. A German university offers a novel method for establishing an individual physical activity programme that reduces the individual risk of a subject for developing a cardiovascular disease. It makes use of newly gained knowledge on miRNAs. miRNAs are short (~21 - 23 nucleotide-long) non-coding ribonucleic acids (RNAs) involved in translational repression regulating a wide range of different physiological processes including development and aging as well as diseases. Since the general knowledge on miRNAs and their specific targets and functions has greatly increased, miRNAs hold the potential to serve as functional biomarkers to monitor and optimize the vasculo- and cardioprotective effects of physical exercise. The method comprises the following steps: (i) Determining the concentration of at least one circulating miRNA from capillary blood obtained from the subject at least before and after the subject has conducted physical activity, (ii) comparing the in step (i) determined concentration(s), and (iii) establishing an individual physical activity programme for the subject based on the result of step (ii). The development or adaptation of an individual physical activity programme is based on the result of step (ii) since the comparison is indicative of whether a subject has an individual risk for developing a cardiovascular disease. Partners from the field of diagnostic industry are sought for licensing agreements.

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