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Capillary electrophoresis-mass spectrometry based metabolomics approaches for volume-restricted applications

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Capillary Electrophoresis-Mass Spectrometry based Metabolomics Approaches for Volume-restricted Applications

1. *In-vivo* brain metabolomics has the potential to elucidate the complex biochemical processes underlying brain function and the pathogenesis of neurological diseases, providing valuable insights into disease diagnosis, progression, and therapeutic interventions.
This thesis
2. Using effective electrophoretic mobility instead of relative migration time substantially enhances compound identification in CE-MS-based metabolomics.
This thesis
3. In-capillary preconcentration improves detection limits of CE-MS methods, allowing confident detection of low-abundance metabolites in complex matrices.
This thesis
4. Capillary electrophoresis is a versatile separation technique that can complement or even replace traditional analytical tools in a wide range of applications, making it a valuable addition to any analytical toolbox.
This thesis
5. The integration of multivariate optimization techniques such as RSM into analytical workflows provides a holistic approach to method development.
6. Science is a collaborative endeavor, and interdisciplinary approaches are essential for tackling complex scientific questions.
7. Availability of standard operating procedures via detailed protocol papers and video articles enhances accuracy, reproducibility, and reliability of data.
8. Personalized medicine has the potential to revolutionize the way we think about and approach healthcare.
9. Science education should encourage curiosity and creativity, fostering a love for science that lasts a lifetime.
10. Pursuing a PhD and training for a running race are surprisingly similar; they require a long-time commitment, perseverance, and a willingness to take risks and to embrace failure as an opportunity to learn and grow.
11. Work smarter, not harder.