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Gene expression profiling in the post-mortem human brain â€” no cause for dismay

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Abstract

Global expression profiling techniques such as microarray technology promise to revolutionize biology. Soon it will be possible to investigate alterations at the transcript level of the entire human genome. There is great hope that these techniques will at last shed light on the pathological processes involved in complex neuropsychiatric disorders such as schizophrenia. These scientific advances in turn have re-kindled a great interest and demand for post-mortem brain tissue. Good quality post-mortem tissue undoubtedly is the fundamental prerequisite to investigate complex brain disorders with molecular profiling techniques. In this review we show that post-mortem brain tissue can yield good quality mRNA and intact protein antigens which allow the successful application of traditional molecular biology methods as well as novel profiling techniques. We also consider the use of laser-capture microdissection on post-mortem tissue. This recently developed technique allows the experimenter to explore the molecular basis of

cellular function at the single cell level. The combination of laser-capture microdissection with high throughput profiling techniques offers opportunities to obtain precise genetic fingerprints of individual neurons allowing comparisons of normal and pathological states.

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Keywords

Post-mortem; Neuropsychiatric disorders; Molecular biology; Expression profiling; Laser-capture microdissection

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