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(54) Title: SEPARATION AND ACCUMULATION OF SUBCELLAR COMPONENTS, AND PROTEINS DERIVED THEREFROM

(57) Abstract: The present invention provides for methods for proteome fractionation through the separation and accumulation of subcellular organelles from a biological sample such that the subcellular organelles are highly enriched, substantially pure, and whose structural integrity and functions are well-preserved. The methods of the invention provide a manner by which to reduce the complexity of the proteome and facilitate the detection and isolation of difficult-to-study proteins, such as low-abundance proteins. The methods of the present invention for pre-fractionating proteomes of biological samples by parallel separation and isolation of subcellular organelles from the biological samples using continuous-flow ultracentrifugation are also easily and effectively scalable through adjustment to ultracentrifugation parameters, such as, for example, rotor speed, rotor size, rotor geometry.