

**EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:** State in layman's terms the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

The purpose of this exploratory research is to investigate the development of an inexpensive column based on planar capillary electrokinetic chromatography technology to separate proteins and peptides. These columns will be tested and integrated to an existing instrument donated from our industrial partner. The research described in this proposal involves the early feasibility study of planar capillary electrokinetic chromatography (PCEC) columns to be used as diagnostic tools in the health industry. These columns will be fabricated using microfluidics and micro-electro-mechanical-system (MEMS) technologies. Their internal surface will be modified using our patented approach developed for open tubular capillary columns. This interdisciplinary effort has for long term goal to develop new tools for the preventive medicine industry through collaborative discoveries and innovation in patient care, education and research. These columns will be used to separate proteins or peptides which might be an early indication of heart disease or cancer and as such are going to be of great interest for preventive medicine.