

# Application of non-enzymatic posttranslational protein modifications as biomarkers of musculoskeletal disease

Duke University is seeking a company interested in commercializing novel biomarkers of musculoskeletal disease and a novel strategy enhancing the effectiveness of such biomarkers. Musculoskeletal diseases include a multitude of disorders that are prevalent in aging populations, with osteoporosis and osteoarthritis (OA) existing as the most common forms. Currently, OA is a major cause of physical disability in the U.S. affecting nearly 27 million people and costing approximately \$5,700 annually per person living with OA, with the numbers expected to increase dramatically as the population ages (Arthritis Foundation, 2008). Current biomarkers are able to diagnosis musculoskeletal diseases, such as OA, by measuring protein turnover, but do not allow for the age of a given protein or protein fragment to be estimated. By determining the relative age of protein turnover biomarkers the presence, status, and prognosis for a given musculoskeletal disease can effectively be established. This proprietary technology provides novel biomarkers of musculoskeletal disease and novel methods of use that improve the diagnostic and predictive ability of biomarkers of musculoskeletal disease.

This technology may be used in diagnosing, prognosing, and screening for musculoskeletal diseases. In particular, these biomarkers and associated methods will be useful in monitoring the progression of joint degradation and response to treatment.

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 **Inventor(s)**

- Kraus, Virginia
- McCudden, Christopher

 **College**

School of Medicine (SOM)

**For more information  
please contact**

Jung, Jee  
919-623-6275  
[jee.jung@duke.edu](mailto:jee.jung@duke.edu)