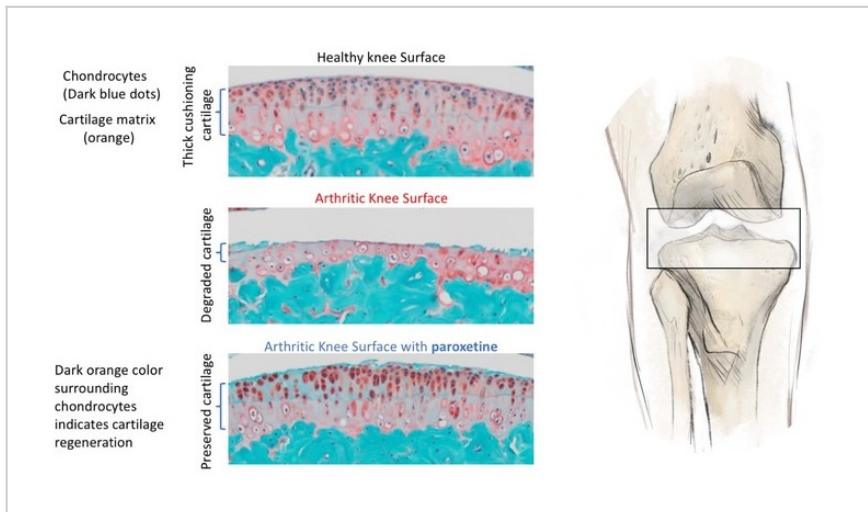


# GRK2 Inhibition by Paroxetine Ameliorates Osteoarthritis

ID# 2020-5059



PennState



Effect of paroxetine on arthritic knee

## Technology Summary

Researchers have discovered that GRK2 plays a central role in osteoarthritis development and that the clinically used depressant, paroxetine, ameliorates osteoarthritis development by inhibiting GRK2. Paroxetine is a disease-modifying agent that prevents cartilage degeneration, promotes cartilage regeneration, and prevents pathological changes in the subchondral bone, meniscus, and synovium. Administration of paroxetine to mice with osteoarthritis or to ex vivo human arthritic cartilage stops the progression of osteoarthritis and promotes cartilage regeneration. Therapeutic efficacy has been shown with doses lower than those used for the antidepressant purpose of paroxetine.

## Application & Market Utility

Osteoarthritis affects more than 30 million adults and is the fifth-leading cause of disability in the U.S. Currently, there are no drugs that can slow down or stop cartilage degeneration in osteoarthritis, i.e., no disease modifying agents are available. Patients with osteoarthritis use various drugs for pain management until most of the cartilage is degenerated and they qualify for knee replacement surgery. More than half of OA patients are unable to achieve adequate pain relief with current treatments. Repurposing of paroxetine could represent a holistic therapeutic approach for osteoarthritis which corrects multiple pathological facets of the disease.

## Next Steps

Seeking licensing partners.

TECHNOLOGY READINESS LEVEL

4-7

### Seeking

Licensing |

### Keywords

- Therapeutic
- Osteoarthritis
- Drug Repurposing
- Disease Modifying Agent

### Researchers

#### Fadia Kamal

Assistant Professor, Department of Orthopaedics and Rehabilitation

[Online Bio](#)

### Other Researchers

### Originating College

College of Medicine

### Office of Technology Management Contact

Martinez, Alison

[alison.martinez@psu.edu](mailto:alison.martinez@psu.edu)



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