Functional Studies

**Structural Function:**
*Rheology Study*
R. S. Rounds, PhD, Rosemont, NJ USA Fluid Dynamics, Inc. 2011

**Efficacy as a boundary lubricant:**
*Dose-dependent cartilage-on-cartilage boundary lubrication properties of Polyglycan®*
Michele M Temple-Wong, PhD, Assistant Project Scientist, Dept. of Bioengineering;
Robert L Sah, MD, ScD, Professor, UCSD Dept. of Bioengineering, Adjunct Professor, UCSD Dept. of Orthopaedic Surgery Society of Professors, Howard Hughes Medical Institute

*Comparative study of potential use with Stem Cells / PRP:*
*Glycosaminoglycan Formulations Containing Hyaluronic Acid Increase Proliferation and Stem Cell Marker Expression in Adipose Derived Stem Cells*
Paul Shealy, DVM, MS, Diplomate ACVS¹, Ivone Bruno, PhD²; Rudy Martinez, MS²; Amir Sanchez, MD, MS²; Michael Coleman PhD². 2013
¹Veterinary Specialists of the Southeast, Savannah, GA; ²InGeneron, Houston, TX 2013

Equine Studies

**Safety when used in horses:**
*Safety Evaluation of Polyglycan® in Horses*
Fred J. Caldwell, DVM, MS, DACVS, Earl M. Gaughan, DVM, DACVS, Melissa Fagerlin, BS Dept. of Clinical Sciences, College of Veterinary Medicine, Auburn University, Auburn, Alabama 36830

**Safety in horses when used at 1 & 3 times normal dose:**
*Safety Study on the Effects of Intra-articular Polyglycan at 1X and 3X Doses*
CE Kawcak DVM, PhD, Diplomate ACVS Associate Professor, Equine Orthopaedic Research Laboratory, Colorado State University 10-14-08

**Efficacy In horses with IA use:**
*Report on the Evaluation of Intra-Articular Polyglycan® for Osteoarthritis using an Equine Model*
Dr. David Frisbie, DVM, Ph.D., DACVS Equine Orthopaedic Research Center CSU Fort Collins, CO April 27, 2009

**Compared to other joint treatments:**
*Current Evidence on Treatments of Joint Disease*
David D. Frisbie, DVM, PhD, Diplomate ACVS, & ACVSMR Equine Orthopaedic Research Center, Department of Clinical Sciences, College of Veterinary Medicine and Biological Sciences, and Molecular, Cellular & Tissue Engineering, Colorado State University, Fort Collins, Colorado, 80523
2nd Equine Lameness Research Workshop, Oklahoma City, OK July 24, 2012
Compared to controls in equine joint:
Comparison of Synovial Fluid in Middle Carpal Joints Undergoing Needle Aspiration, Infusion with Saline, and Infusion with a Combination of N-Acetyl-D-Glucosamine, Hyaluronic Acid, and Sodium Chondroitin Sulfate
Christopher E. Kawcak, DVM, PhD, Dipl ACVS, C. Wayne McIlwraith, BVSc, PhD, DSc, FRCVS, Dipl ACVS, Gail Holmes Equine Orthopaedic Research Laboratory, Colorado State University, Fort Collins, CO

Efficacy against single impact load:
Effect of a solution of hyaluronic acid–chondroitin sulfate–N-acetyl glucosamine on the repair response of cartilage to single-impact load damage
Frances M. D., Henson, MA, Vet MB, PhD; Alan M. J. Getgood, MD; David M. Caborn, MD; C. Wayne McIlwraith, DVM, PhD, DSc; Neil Rushton, MD AVJR, Vol 73, No. 2 Feb 2012 Cambridge

Assessing chondroprotective abilities:
ArthroDynamic In Vivo Study: Synovial Fluid Metrics to Assess Chondroprotection by Polyglycan eSF Metrics vs Tissue Outcomes
Michele M Temple-Wong, PhD, Assistant Project Scientist, Dept. of Bioengineering; Robert L Sah, MD, ScD, Professor, UCSD Dept. of Bioengineering, Adjunct Professor, UCSD Dept. of Orthopaedic Surgery Society of Professors, Howard Hughes Medical Institute

Companion Animal Studies

Safety in dogs, given IA or IM:
Local & systemic effect of a commercial preparation of CS, HA and NACD-glucosamine when administered IA or IM to healthy dogs
Catriona MacPhail DVM, Ph.D., ACVS, Associate Professor of Surgery, Colorado State University, Michael R. Lappin. DVM, Ph.D., Diplomate, American College of Veterinary Internal Medicine, Professor Medicine, Depart. of Clinical Sciences, Colorado State University, Fort Collins, CO, 2010

Safety in cats, given intramuscularly:
Systemic effects of a commercial preparation of Chondroitin sulfate, Hyaluronic acid and N-acetyl-D-glucosamine when administered parentally to healthy cats.
Julia K. Veir, DVM, Ph. D, DACVIM (SAIM) Colorado State university, Dept. of Clinical Sciences; Craig B Webb DVM, PhD., DACVIM; Michael R. Lappin. DVM, Ph.D., Diplomate, American College of Veterinary Internal Medicine, Professor Medicine, Department of Clinical Sciences, Colorado State University, Fort Collins, CO 2013

Safety in cats, administered into the urinary bladder:
Intravesical glycosaminoglycans for obstructive feline idiopathic cystitis.
Allison M Bradley DVM, DACVIM; Michael R. Lappin. DVM, Ph.D., Diplomate, American College of Veterinary Internal Medicine, Professor Medicine; Department of Clinical Sciences, Colorado State University, Fort Collins, CO