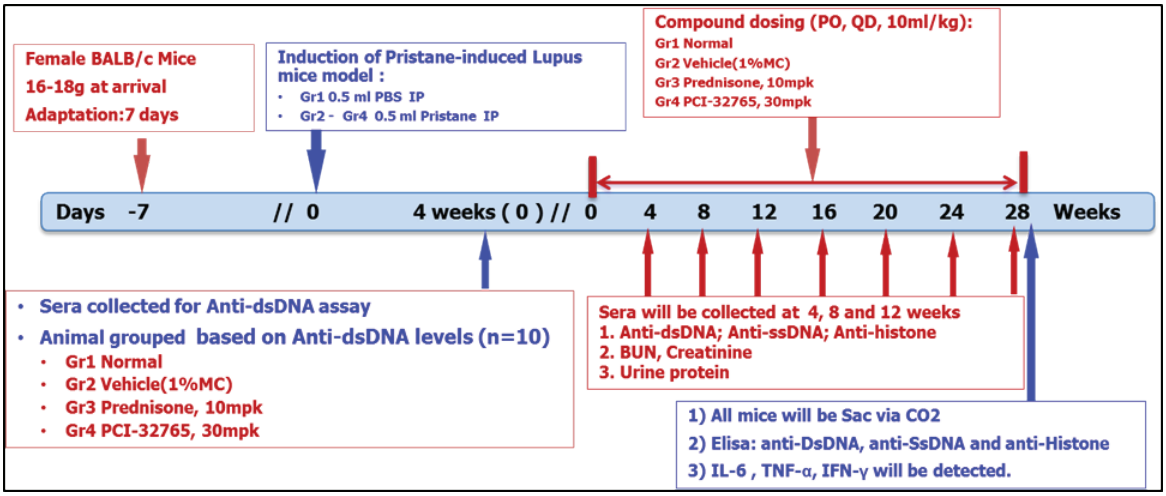
BIODURO

Pristane Induced Lupus Model

Systemic lupus erythematosus (SLE) is an autoimmune inflammatory disease of unknown etiology, and for which approved therapies are inadequate. Current treatments rely on the use of cytotoxic, anti-proliferative, and anti-metabolite drugs as well as the depletion or inactivation of B cells. The pathogenesis of SLE is attributed to dysfunction of T cells, B cells, dendritic cells, macrophages and neutrophils, secondary to genetic and/or environmental factors.

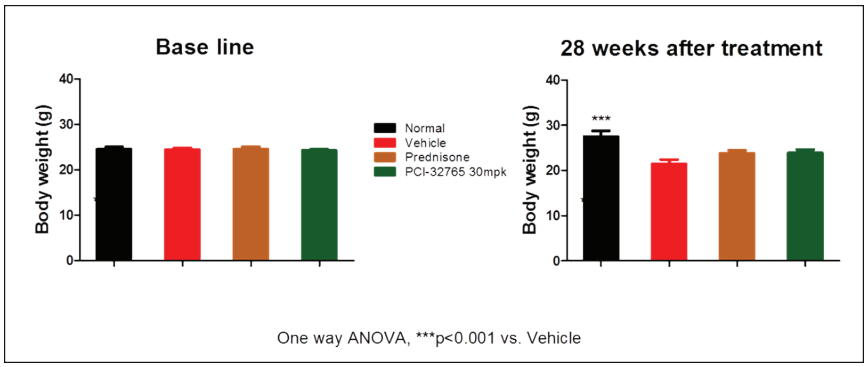
The naturally occurring hydrocarbon oil TMPD (2,6,10,14-tetramethylpentadecane), more commonly known as pristane, induces chronic inflammation when introduced into the peritoneal cavity. Over the past 15 years, it has been found that the inflammatory response to pristane causes a lupus-like disease in mice. The mechanisms involved in pristane-lupus are coming into clearer focus and may be highly relevant to human systemic lupus erythematosus (SLE), an immune disorder increasingly linked to the overproduction of the type 1 interferons (IFN) α and β. Lupus autoimmune antibodies are produced in ectopic lymphoid tissue developing in response to pristane. The pristane treated mice develop clinical manifestations of lupus, including arthritis, immune complex-mediated glomerulonephritis, and pulmonary capillaritis. Inflammation of the pericardium and pleura also occurs, but it is unclear whether this is autoimmune in origin. SLE is a human syndrome classified using a set of 11 criteria and pristane treated mice meet these criteria.

Study Protocol



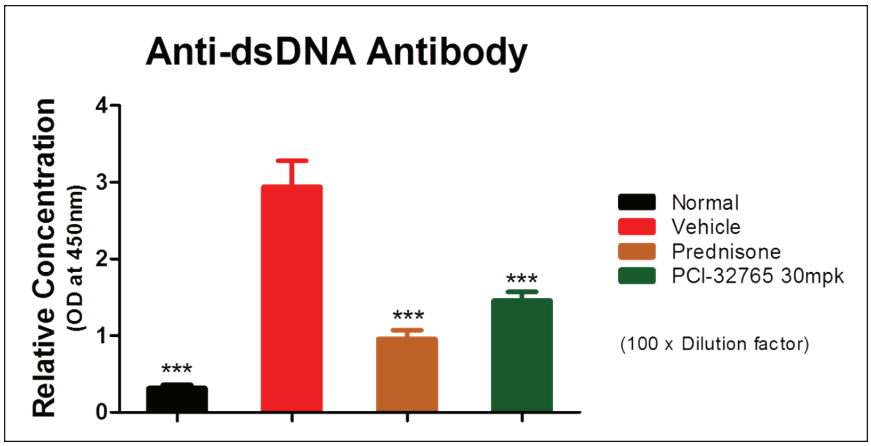
Results

Changes In Body Weight



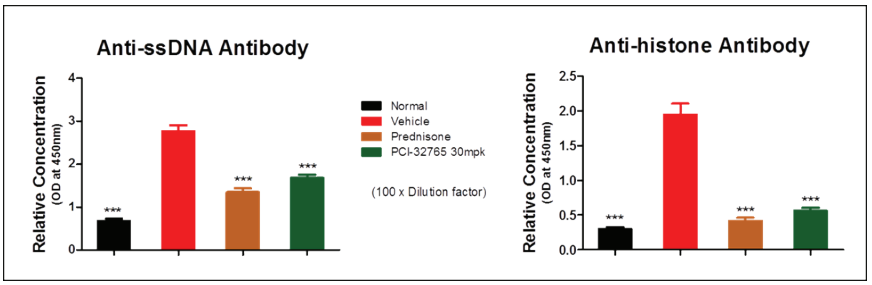
One-way ANOVA, ***p<0.001 vs. Vehicle

Lupus specific autoimmune antibody level



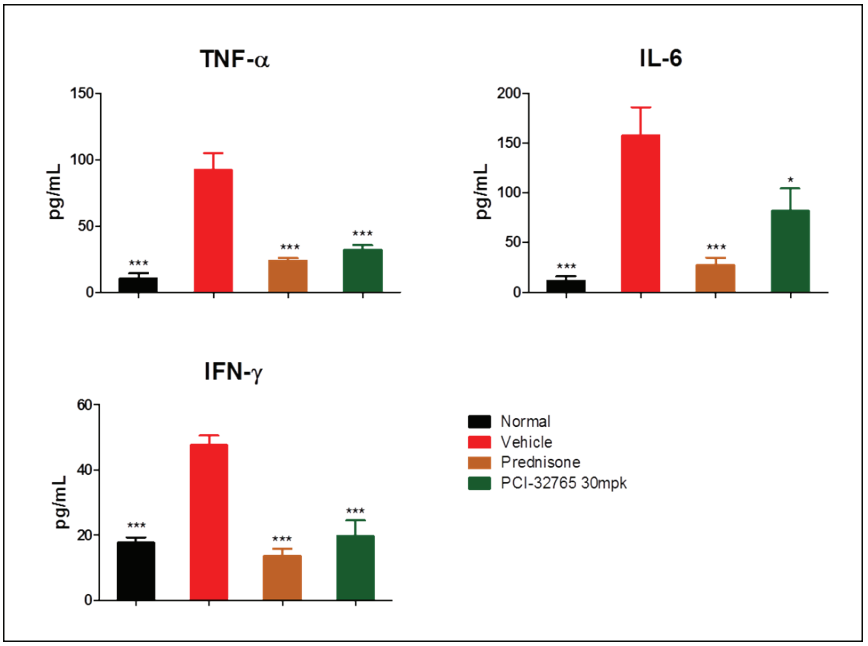
One-way ANOVA, ***p<0.001 vs. Vehicle

Lupus non-specific autoimmune antibodies levels



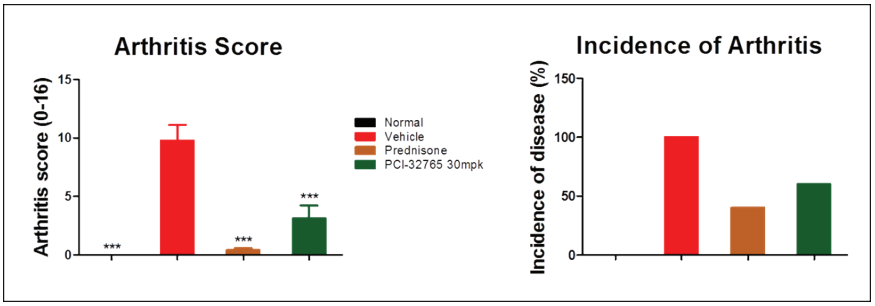
One-way ANOVA, ***p<0.001 vs. Vehicle

Cytokines levels in Lupus mice



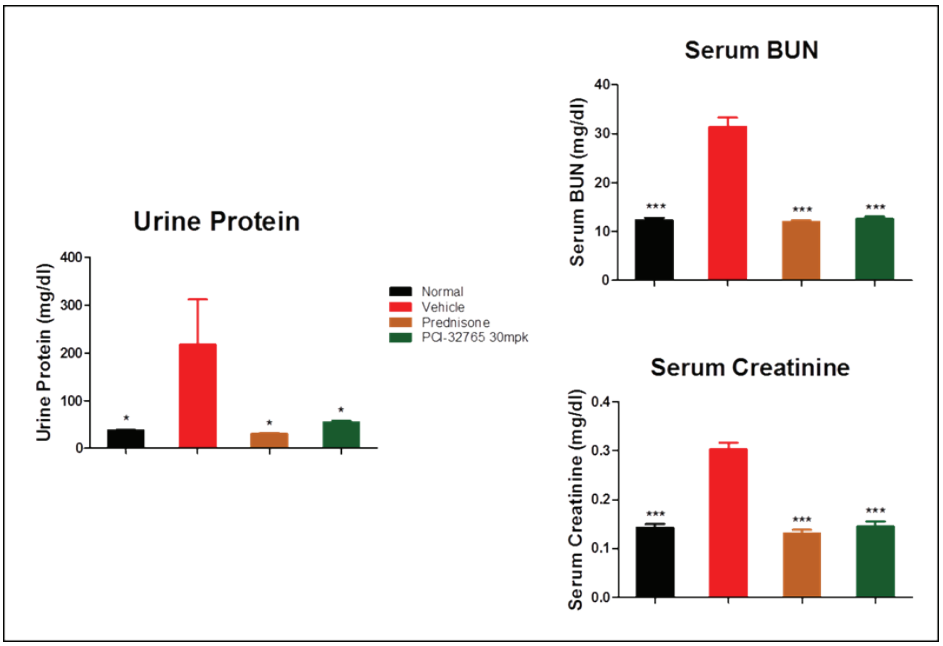
One-way ANOVA, *p<0.05, ***p<0.001 vs. Vehicle

Compound reduced arthritis score in Lupus mice



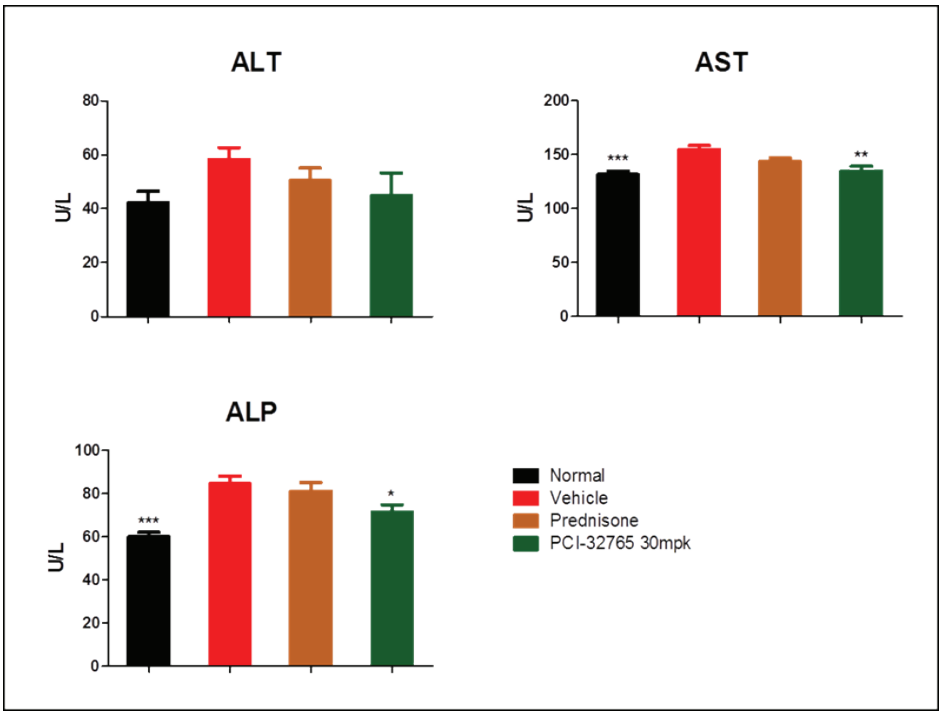
One-way ANOVA, ***p<0.001 vs. Vehicle

Compound improves kidney function in Lupus mice



One-way ANOVA, *p<0.05, ***p<0.001 vs. Vehicle

Compound improves liver function in Lupus mice



One-way ANOVA, *p<0.05, **p<0.01, ***p<0.001 vs. Vehicle

BioDuro Pharmacology

The BioDuro Advantage

BioDuro's pharmacology team has extensive drug discovery and development experience in the pharmaceutical industry enabling us to support fully integrated programs, including study design and data interpretation. Special expertise in metabolic and inflammatory diseases is coupled with a commitment to working with clients to develop customized models for rare diseases.

Our team has successfully collaborated with 9 of the top 20 large pharmaceutical companies and numerous small companies. The success of these collaborations is highlighted by the quality data provided that have informed key project decisions and regulatory filings. Beyond providing analysis, our senior team's expertise allows for the development of a consulting relationship with client partners.

The Pharmacology Team

- **Dr. Yong Qi,** Directory of Pharmacology, has over 16 years of experience in leading and advancing drug discovery projects in metabolic and other disease areas at several pharmaceutical companies, including GlaxoSmithKline
- Group leader-level scientists with strong background and training in metabolic diseases
- A team of 20 well-trained bench scientists focused on in vitro and in vivo metabolic disease drug discovery services. They are skilled in different animal models/assays and excel in problem-solving and trouble-shooting

Services

- Translational research
- Biomarker discovery & development
- Compound efficacy evaluation
- Consultation

Therapeutic Focus

- CNS
- Inflammation and Immunology Disease
- Metabolic Disease