

**2018 Oklahoma Applied Research Awards**

| <b>Project Number</b> | <b>PI</b>  | <b>Organization</b>         | <b>Project Title</b>   | <b>Award Amount</b> |
|-----------------------|------------|-----------------------------|--|---------------------|
| AR18-056              | Faith      | SpectrumFX                  | Optimization of flow and disbursement for a green fire suppression agent   | \$44,588            |
| AR18-019              | Jupe       | Progentec Diagnostics, Inc. | Translation of a diagnostic test for Lupus flare prediction from bench to clinic   | \$150,000           |
| AR18-045              | Refai      | Optecks, LLC                | Intra-operative 3D scanning system for minimally invasive surgery  | \$300,000           |
| AR18-078              | Manimala   | Oklahoma State University   | Acoustic metastructures for next generation aircraft liners  | \$290,650           |
| AR18-035              | Ramsey     | Oklahoma State University   | Commercialization of a novel single-use bioreactor   | \$150,000           |
| AR18-063              | Santos     | University of Oklahoma      | Infrared detectors with narrow tunable linewidths  | \$90,000            |
| AR18-033              | Pereyra    | University of Tulsa         | Downhole separator design for pumping systems in horizontal wells  | \$184,795           |
| AR18-069              | Shao       | Amethyst Research, Inc.     | eSWIR  | \$300,000           |
| AR18-026              | Mohan      | University of Tulsa         | Novel compact separators for fine separation of water and oil  | \$90,000            |
| AR18-008              | Saparov    | University of Oklahoma      | Solution-processable halides for radiation detection   | \$300,000           |
| AR18-028              | Rouser     | Oklahoma State University   | Turboelectric unmanned aircraft sensor system for oil and gas pipeline inspection  | \$84,519            |
| AR18-073              | Moses      | University of Oklahoma      | Development of intelligent protection systems for mitigating dynamic disturbances in remote distribution feeders with microgrids | \$74,087            |
| AR18-070              | Shojaee    | Amethyst Research, Inc.     | A new class of miniaturized lightweight highly efficient solid state cryogenic cooler  | \$90,000            |
| AR18-052              | Sellers    | University of Oklahoma      | Deployable CIGS solar cells for "SmallSat" deep space missions   | \$300,000           |
| AR18-025              | Ramanathan | Oklahoma State University   | Novel nitrite embedded packaging to increase value of dark-cutting beef  | \$90,000            |
| AR18-037              | Soliman    | Oklahoma State University   | New steel connections for seismic retrofit and strengthening of bridges and buildings  | \$220,828           |
| AR18-015              | Platvoet   | XRG Technologies LLC        | Development of a fluid turbulator for use in fired heaters to reduce fouling   | \$300,000           |
| AR18-050              | Shaffer    | GasTech Engineering LLC     | Low-NOx and low-noise burner final development   | \$182,176           |

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|----------|---------|---------------------------|---|-----------|
| AR18-042 | Lampert | Oklahoma State University | Aeration process controls to reduce energy costs in wastewater treatment plants   | \$90,000  |
| AR18-022 | Hossain | Amethyst Research, Inc.   | Natural gas-water mixture as an alternate fracturing fluid to enhance oil and gas recovery from unconventional reservoirs | \$300,000 |
| AR18-023 | Fahs    | University of Oklahoma    | A novel method for enhancing artificial lift performance  | \$25,000  |
| AR18-009 | King    | Exaptive, Inc.            | Data model and algorithms for data-driven team building with quantifiable exaptation potential                            | \$300,000 |

**2018 Health Fellowship Awards**

| <b>Project Number</b> | <b>PI</b> | <b>Organization</b>                           | <b>Project Title</b>   | <b>Award Amount</b> |
|-----------------------|-----------|---|--|---------------------|
| HF18-022              | Griffin   | Oklahoma Medical Research Foundation          | Role of lysine malonylation in chondrocyte metabolic stress and osteoarthritis | \$150,000           |
| HF18-014              | Griffin   | Oklahoma Medical Research Foundation          | Investigation of the role of hypoxia in initiating hyaloid vessel regression   | \$149,722           |
| HF18-008              | Elliott   | University of Oklahoma Health Sciences Center | The role of TRAF3 in retinal function and inflammation                         | \$150,000           |

**2018 Health Research Awards**

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|-----------------------|-----------------|---|---|---------------------|
| HR18-077              | Cecil           | Oklahoma State University                     | Investigation of impact of virtual reality based cyber learning approaches to ABA techniques for teaching STEM concepts to children with autism | \$79,895            |
| HR18-097              | Oomens          | Oklahoma State University                     | A novel virus-like-particle based RSV vaccine to generate broad and durable protection  | \$135,000           |
| HR18-046              | Christiansen    | University of Oklahoma Health Sciences Center | Does Prolyl oligopeptidase inhibition suppress tumor growth?  | \$135,000           |
| HR18-104              | DeAngelis       | University of Oklahoma Health Sciences Center | Tetherable Glycosaminoglycan polymers for insights into matrix/cell/protein interactions  | \$135,000           |
| HR18-039              | Rhudy           | University of Tulsa                           | Does glucose dysmetabolism contribute to Native American pain disparities?: A pilot study   | \$135,000           |
| HR18-120              | Sonntag         | University of Oklahoma Health Sciences Center | Susceptibility to amyloid oligomers in response to aging and insulin/IGF-1 resistance   | \$135,000           |
| HR18-034              | Wang            | University of Oklahoma Health Sciences Center | Development and evaluation of vibration-based wearable upper limb rehabilitation device   | \$134,964           |
| HR18-118              | Conley          | University of Oklahoma Health Sciences Center | The role of vascular smooth muscle cell plasticity in age-related cognitive decline   | \$135,000           |
| HR18-139              | Ekhtiari        | Laureate Institute for Brain Research         | Neurocognitive empowerment for addiction treatment (NEAT): A randomized controlled trial for opioid addiction                                   | \$133,943           |
| HR18-069              | Fan             | Oklahoma State University                     | A mobile platform for clinical gait analysis  | \$135,000           |
| HR18-053              | Sathyaseelan    | University of Oklahoma Health Sciences Center | Testing the role of inflammation in aging and age-related diseases  | \$135,000           |
| HR18-079              | Sweatt          | Oklahoma State University                     | Identifying a direct path to emotion dysregulation in borderline personality  | \$134,245           |
| HR18-013              | Lamar           | University of Tulsa                           | Late-Stage C-N incorporation to bioactive cores   | \$135,000           |
| HR18-011              | Janknecht       | University of Oklahoma Health Sciences Center | Oxygenase JMJD4 and its role in breast cancer   | \$135,000           |
| HR18-110              | West            | University of Oklahoma                        | Two-component signal transduction in the human bacterial pathogen Clostridioides difficile  | \$135,000           |
| HR18-005              | Mao             | Oklahoma State University                     | Nanocoatings for controlled drug release and improved biocompatibility  | \$135,000           |
| HR18-002              | Lee             | University of Oklahoma                        | Novel shape memory polymer devices for optimal endovascular embolization of intracranial aneurysms  | \$135,000           |
| HR18-072              | Rodgers         | University of Oklahoma Health Sciences Center | Regulation of RAG2-chromatin interactions during V(D)J recombination  | \$135,000           |
| HR18-037              | Ruiz-Echevarria | University of Oklahoma Health Sciences Center | Defining the role of the TMEFF2 transcript in androgen signaling in prostate cancer   | \$135,000           |

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| HR18-093 | Andiappan              | Oklahoma State University                            | Copper nanocatalyst as efficient heterogeneous photocatalyst for continuous syntheses of pharmaceuticals through cross-coupling reactions          | \$134,757 |
| HR18-119 | Vassar                 | Oklahoma State University Center for Health Sciences | Factors influencing the reproducibility of clinical trials and systematic reviews in addiction research  | \$119,547 |
| HR18-092 | Csiszar                | University of Oklahoma Health Sciences Center        | Novel mechanism of age-related cerebrovascular dysfunction   | \$135,000 |
| HR18-088 | Ramesh                 | University of Oklahoma Health Sciences Center        | Non-invasive liquid biopsy approach for using exosomes as a surrogate for determining response to immunotherapy in lung cancer patients            | \$135,000 |
| HR18-089 | Curtis                 | Oklahoma State University Center for Health Sciences | Neuroimmune activation and weight gain in a rat model of post-menopausal obesity   | \$135,000 |
| HR18-054 | Kollock                | University of Tulsa                                  | Fit-for-duty: An examination of the efficacy of the physical abilities test in determining physical readiness                                      | \$114,666 |
| HR18-113 | Zhao                   | University of Oklahoma Health Sciences Center        | Define the role of Mpl in myelofibrosis  | \$135,000 |
| HR18-087 | Paiva                  | Oklahoma State University Center for Health Sciences | Validating a clinical decision support algorithm developed with big data to diagnose, state, prevent, and monitor a patient's diabetic retinopathy | \$90,000  |
| HR18-040 | Greenwood-Van Meerveld | University of Oklahoma Health Sciences Center        | Central epigenetic reprogramming of amygdala receptor expression in stress-induced chronic pain  | \$135,000 |
| HR18-049 | Hussaini               | University of Tulsa                                  | Discovery of Indolizidine (-)-237D analogs as selective $\alpha_6^*$ receptor antagonists  | \$135,000 |
| HR18-130 | Shao                   | University of Oklahoma                               | Rational development of selective and potent inhibitors to pro-apoptotic Bax protein   | \$135,000 |
| HR18-085 | Wang                   | Oklahoma State University                            | Non-contact, in vivo measurement of hyper-elastic response of bio-membranes for predicting traumatic injuries                                      | \$103,957 |

**2018 Intern Partnership Awards**

| <b>Project Number</b> | <b>PI</b> | <b>Organization</b>    | <b>Project Title</b>   | <b>Award Amount</b> |
|-----------------------|-----------|------------------------|--|---------------------|
| IP18-015              | Singh     | University of Tulsa    | Design and development of aircraft components  | \$60,000            |
| IP18-017              | Ashenayi  | University of Tulsa    | Design, development and use of a gear fatigue test rig   | \$38,694            |
| IP18-014              | Singh     | University of Tulsa    | Design and development of robotic positioning systems  | \$36,000            |
| IP18-023              | Zaman     | University of Oklahoma | Improved relationships between properties of high strength concrete for better quality control and forensic investigations | \$36,164            |
| IP18-025              | Muehring  | NextThought, LLC       | NextThought - OU CS intern program   | \$60,000            |
| IP18-005              | Ashenayi  | University of Tulsa    | Switchgear simulator graphics upgrade  | \$38,694            |
| IP18-008              | Singh     | University of Tulsa    | Design and development of process plant components   | \$60,000            |
| IP18-013              | Hawrylak  | University of Tulsa    | Updating legacy downhole equipment tools for compliance to API 11D1 certification  | \$58,914            |
| IP18-016              | Hawrylak  | University of Tulsa    | Ensuring project compliance with American Petroleum Industry (API) Standards 520 and 521                                   | \$36,114            |
| IP18-026              | Salehy    | True Digital Security  | True Digital Security platform module integration and development  | \$60,000            |

**2018 Plant Science Awards**

| <b>Project Number</b> | <b>PI</b> | <b>Organization</b>           | <b>Project Title</b>   | <b>Award Amount</b> |
|-----------------------|-----------|-------------------------------|--|---------------------|
| PS18-016              | Fathepure | Oklahoma State University     | Pretreatment of switchgrass by fungi-bacteria co-culture for effective saccharification and butanol production           | \$100,000           |
| PS18-027              | Moore     | University of Oklahoma        | Preliminary study of genetic diversity in Grindelia ciliata, a promising biofuel crop native to Oklahoma                 | \$99,952            |
| PS18-012              | Zhao      | Noble Research Institute, LLC | Development of PSSPGD Server - a web server for plant small signaling peptide-encoding gene discovery                    | \$99,467            |
| PS18-028              | Ma        | Noble Research Institute, LLC | Unraveling genes underlying dual-purpose wheat seedling drought and heat tolerance using automated phenotyping platforms | \$99,247            |
| PS18-018              | Fokar     | Oklahoma State University     | Forward genetic analysis of cotton fiber development   | \$99,492            |
| PS18-026              | McCarthy  | University of Oklahoma        | The physiological basis of drought stress responsiveness of switchgrass genotypes with altered cell wall metabolism      | \$99,223            |
| PS18-025              | Allen     | Oklahoma State University     | Stress tolerant cotton   | \$99,328            |
| PS18-014              | Sunkar    | Oklahoma State University     | Elucidating the role of microRNAs in photosynthesis by using closely related C3, C3-C4, and C4 Flaveria species          | \$100,000           |