# Medical Devices for Better Health

**First spider bite test with Jon Green, UMC, and T Parks, A&A Tech enables first Rx**
- Polyclonal ELISA for reliable detection of recluse spider bites
- Therapy of spider bites found by AlphaFold model and ligand docking

**Deep learning (DL): Early skin cancer detection with RJ Stanley and JR Hagerty**
- Structure-based early melanoma detection, overcomes black-box nature of DL
- Fusion of DL with conventional image processing

**ZnO in wound healing with J Park, C-S Kim, H Yang, N Ercal and H Shi**
- Determine whether ZnO, antioxidants boosts nanofiber wound healing activity

**Smart Bandage with Chang-Soo Kim, Paul Nam, Jason Hagerty**
- Tissue oxygen determination with oxygen-quenching reaction
- Smart phone communication

**Pheromone-based spider trap with H Shi, J Parks, S&A Tech and C Kristensen, SpiderPharm**
- In-vivo monitoring to detect life-cycle spider semiochemicals

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- National Institutes of Health (NCI, NINR, NIAID)
- National Science Foundation

**Collaboration:** I am interested in applying technology for better health

**Keywords:**
- Melanoma, Artificial Intelligence, Spider Bites, Loxosceles, Skin Cancer, Fatal Drug Reactions, Smart Bandage, Wound Healing, Pheromones

**Recognition:**
- **Awards:**
  - 2019-2021 Best Doctors in America
  - 1994 Co-author, Best Paper of 192 Papers, ANNIE-94, Artificial Neural Networks in Engineering, St. Louis MO

- **Patents U.S.** 5,037,431, 7,689,016, 7,927,828, 8,426,154, 10,531,825, 10,548,305, 10,874,555