Cardialen is a medical device company and one of Wash U’s more mature startups, raising nearly $10 million to date.

In January 2009, Cardialen licensed technology which originated in the laboratory of Professor Igor Efimov from Washington University and Case Western. The technology is a unique series of low-energy electrical pulses that can be delivered by a common pacemaker or defibrillator to treat the heart rhythm when the heart beats too fast. Atrial Fibrillation (AF) is the most common cardiac arrhythmia and it occurs when the upper chambers of the heart beat too quickly. Patients in AF may be highly symptomatic and are often susceptible to severe stroke. The Cardialen device automatically detects when AF starts and will deliver the patented treatment to stop AF, gently returning the heart to its natural heart rhythm. This novel therapy has advantages over current treatments for AF, such as drugs, ablation and shocks, including greater efficacy and fewer side effects. With 24/7 therapy protection provided by an implantable device, patients may experience less symptoms, fewer hospital admissions and possibly reduce or eliminate use of blood thinner drugs.

Cardialen presented clinical data at the prestigious Heart Rhythm Society meeting in May 2017, not only describing the remarkable human clinical results for the AF therapy, but pre-clinical treatment results for ventricular fibrillation (VF). VF, more commonly known as Sudden Cardiac Arrest, is the leading cause of death in the US, and the licensed technology is being researched for new treatment applications in this critically important ventricular condition.

Cardialen remains on track to deliver a working implantable prototype by 2019 and enter human clinical device trials by 2021.