

Title (en)
PLASMA CREATION VIA NONAQUEOUS OPTICAL BREAKDOWN OF LASER PULSE ENERGY FOR BREAKUP OF VASCULAR CALCIUM

Title (de)
PLASMAERZEUGUNG DURCH NICHTWÄSSRIGEN OPTISCHEN AUFBRUCH VON LASERPULSENERGIE ZUM AUFBRECHEN VON VASKULÄREM CALCIUM

Title (fr)
CRÉATION DE PLASMA PAR RUPTURE OPTIQUE NON AQUEUSE D'ÉNERGIE PULSÉE LASER POUR FRAGMENTATION DE CALCIUM VASCULAIRE

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Abstract (en)
[origin: WO2020256949A1] A catheter system (100) for treating a treatment site (106) within or adjacent to a blood vessel (108) includes a power source (124), a light guide (122) and a plasma target (242). In various embodiments, the light guide (122) receives power from the power source (124). The light guide (122) has a distal tip (244), and the light guide (122) emits light energy (243) in a direction away from the distal tip (244). The plasma target (242) is spaced apart from the distal tip (244) of the light guide (122) by a target gap distance (245). The plasma target (242) is configured to receive light energy (243) from the light guide (122) so that a plasma bubble (234) is generated at the plasma target (242). The power source (124) can be a laser and the light guide (122) can be an optical fiber. In certain embodiments, the catheter system (100) can also include an inflatable balloon (104) that encircles the distal tip (244) of the light guide (122). The plasma target (242) can be positioned within the inflatable balloon (104). The target gap distance (245) can be greater than 1 μm . The plasma target (242) can have a target face (1672) that receives the light energy (243) from the light guide (122). The target face (1672) can be angled relative to a direction the light energy (243) is emitted to the plasma target (242). The plasma target (242) can be formed from one or more of tungsten, tantalum, platinum, molybdenum niobium, iridium, magnesium oxide, beryllium oxide, tungsten carbide, titanium nitride, titanium carbonitride and titanium carbide.

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