

## Modular Wireless Large Bore Vacuum Universal Endoscope A.K.A. Vacuumscope

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### BRIEF DESCRIPTION

Although kidney stones are a prevalent problem that affect more than 10% of the population and cost the US economy upwards of \$10 billion annually, the complete removal of stone fragments is difficult to achieve without surgical interventions. Researchers at UCI have developed a novel vacuum endoscope which, when combined with standard kidney stone ablation procedures, is capable of completely removing the resulting fragments.

### FULL DESCRIPTION

Nephrolithiasis (kidney stones) afflicts nearly 10% of the population and is currently the most expensive urological condition for the US economy, costing upwards of \$10 billion annually to treat. If left untreated, nephrolithiasis can lead to persistent renal obstruction and even permanent renal damage. Stones that are too large to pass naturally through the body (generally > 7 mm), must be removed through a different method. Uretroscopic litotripsy is one of the most common methods used to treat this condition. In this procedure, a small scope is inserted into the bladder and used to precisely locate kidney stones. The stones are then typically subject to laser ablation, which fragments the stones into smaller pieces that can be cleared by the body. Although the technique is safer (especially for those pregnant, obese, and/or prone to blood clots), less expensive, and more accurate than many other available methods, ureteroscopic lithotripsy still only clears about 50% of total stone density. Furthermore, any fragmentation that is left behind increases the risk of recurrent stones. Clearly, this inefficiency in removing kidney stones can pose a widespread and expensive concern.

To increase the clearing efficiency of ureteroscopic litotripsy, researchers at UCI have redesigned the standard lithotriptic device to include a large vacuum channel. The increased suction potential of this vacuum channel is capable of completely removing stone fragments. In addition to its increased efficiency, the device is completely wireless, ergonomic, and easy to maneuver with one hand. Finally, the disposable nature of both the vacuum endoscope and external battery pack eliminate the risk of infection from improper device cleaning.

### SUGGESTED USES

- A ureteroscope, for the laser ablation of urethral and renal stones and the capture and removal of stone fragments

### FEATURES/BENEFITS

- More effective: The large vacuum channel allows for the complete removal of all stone fragments <1.5 mm.
- Safer: The device is disposable, eliminating the risk of infection and damage from improper cleaning.
- Easier to use: The cordless nature and ergonomic design makes the device more compact and easier to operate.

### CONTACT

Alvin Viray  
aviray@uci.edu  
tel: 949-824-3104.



### OTHER INFORMATION

### CATEGORIZED AS

- » **Medical**
- » Devices
- » Disease: Kidneys and Genito-Urinary System

### RELATED CASES

2018-510-0

· Adaptive: The device is compatible with various types of endoscope tips.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20220265350	08/25/2022	2018-510

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Applied Innovation

5270 California Avenue / Irvine,CA  
92697-7700 / Tel: 949.824.2683



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