

# Endoluminal Anastomotic Stapler

ALLIANCE FOR INNOVATIVE MEDICAL TECHNOLOGY – AIMTECH / SURGICAL ENDOSCOPY



The endoluminal anastomotic stapler (ELA) device works with standard colonoscopes for use in Natural Orifice Transluminal Endoscopic Surgery (NOTES) procedures. The device is inserted into the patient's rectum and advanced through the colon to the area of interest. The device inverts the targeted segment of colon via an inlet port. Once the colon section has been inverted and positioned correctly, a stapling controller circumferentially staples the previously non-adjacent areas of the colon together. A cutting mechanism is advanced to resect the area of interest. The ELA stapler is designed to remove a section of the colon from within the lumen of the large intestine with no extra-luminal manipulation or need for incisions on the patient anywhere other than the colon. The excised area of interest remains within the ELA stapler, and the stapled colon is released from the device.

#### PLEASE CONTACT

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### ■ Technical Readiness Level

TRL 3 (Analytical and experimental critical function and/or characteristic proof of concept) Prototype built and unit operations evaluated.

### ■ Competitive Advantages

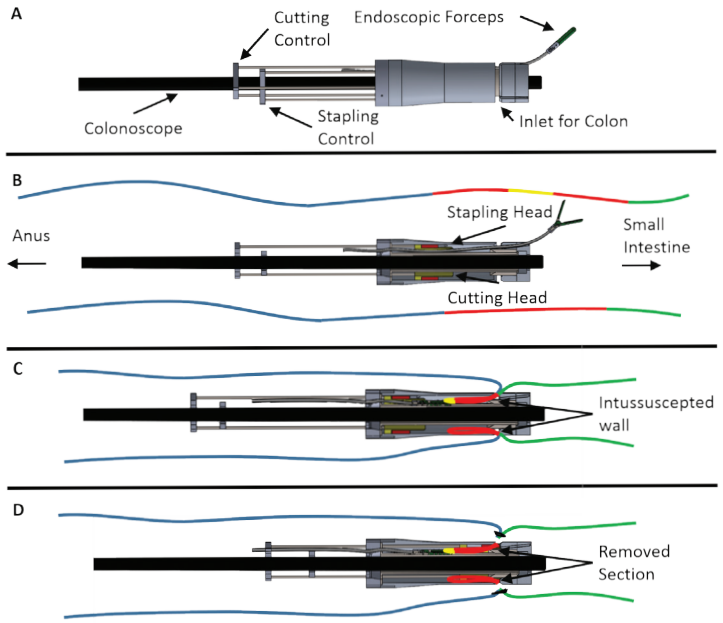
Current surgical approaches for large intestine excision and reconstruction require at least one abdominal wall incision. While minimally-invasive surgery has transformed the surgical field, the realization and potential clinical benefits of a completely “scarless” abdominal operation have yet to materialize due to technological limitations. In fact, few technological advances have been made in the field of intestinal reconstruction using staplers since the development of the end-to-end anastomotic (EEA) stapler in 1979. All versions of current staplers still require extra-luminal maneuvers, which have the potential for fecal contamination during preparation to reconnect (anastomose) the intestinal segments. The development of a completely endoluminal anastomotic (ELA) stapler device, and possible incision-free technique to reconstruction, has the potential to change approaches to intestinal reconstructions. Additionally, because there are no extra-luminal maneuvers, fecal contamination of the surgical sight will be virtually eliminated.

### ■ Intellectual Property Status

Patent Application Filed

### ■ Inventors

- Daniel Chu, MD
- Greg Kennedy, MD, PhD, UAB Department of Surgery
- Robert Hergenrother, PhD
- Patrick Schexnailder, PhD, Southern Research



### ■ Market Overview

Each year, more than 600,000 surgical procedures are performed in the United States to treat a number of colon diseases, with 40% of colectomy procedures using a minimally invasive approach. Patients undergo colon surgery for a variety of conditions including colorectal cancer, polyps, inflammatory bowel disease, colonic inertia, stricture of the colon and diverticulitis surgery. With post-operative lengths-of-stay spanning 8-12 days, post-operative complication rates approaching 30% and 30-day readmission rates of 15%, colorectal operations account for nearly 25% of all complications in general surgery. In 2017, it is estimated that there will be 135,430 new cases of colon and rectum cancer and an estimated 50,260 people will die of this disease.



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