

## Transdermal, Continuous Measurement of Renal Function in Research Animals

Transdermal measurement of Glomerular Filtration Rate (tGFR) is used extensively in preclinical nephrology research. MediBeacon's system allows calculation and tracking of an animal's kidney function over time without requiring the animal to be restrained during monitoring.

Determination and monitoring of tGFR is essential for various preclinical studies, e.g. characterization of renal function, assessment of new and existing kidney therapeutics, evaluation of nephrotoxicity, screening of novel chemical or medical agents, and fundamental understanding of kidney function.

Historically, the research standard for measuring renal function has required several blood draws as a function of time and subsequent sophisticated laboratory analysis to measure tracer agent concentrations in each blood sample. This methodology using blood and/or urine sampling is labor-intensive, and multiple blood draws put a strain on the animal.

Utilization of the MediBeacon® Preclinical MX and the novel fluorescent tracer agent Relmapirazin is independent of blood sampling, urine collection, and laboratory assays and thus enables streamlined preclinical trial design and execution.

To obtain a quote for Relmapirazin or Preclinical MX contact [sales@medibeacon.com](mailto:sales@medibeacon.com).

## Successful Use in Nephrology Research

MediBeacon preclinical technology is used by leading medical schools, academic centers, research institutes, contract research organizations, and pharmaceutical companies worldwide to enhance preclinical assessment of kidney therapeutics, evaluate nephrotoxicity, and gain fundamental understanding of kidney function in animals.

Research using the MediBeacon preclinical product has been featured at scientific meetings worldwide. There are **>700 peer-reviewed publications and conference abstracts** in which this tGFR technique has been used.

For the latest research references visit [www.medibeacon.com/publications/](http://www.medibeacon.com/publications/) and select the preclinical tab or click below.

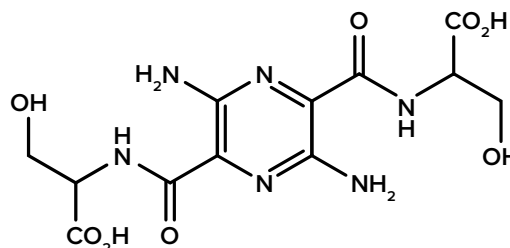


This device is used exclusively in animal research.

**PRECLINICAL**  
Leading researchers worldwide rely on MediBeacon technology.



## Relmapirazin



**Chemical Formula:**  
3,6-diamino-2,5-bis-[N-[(1R)-1-carboxy-2-hydroxyethyl] carbamoyl]pyrazine

## Key Advantages

- Equivalency to iohexol shown in humans<sup>(a)</sup>
- Fully synthetic compound – no batch to batch variability in fluorescence yield
- Toxicologic profile available
- Same compound can be used for all species (including large animals) to improve transfer of research from bench to bedside
- Higher fluorescence compared to FITC-Sinistrin
- Supplied in sterile liquid formulation
- Compatible with all available preclinical tGFR devices (UD, Mini and MX)

## System

- Device and patch are affixed to animal.
- Fluorescent tracer agent is administered.
- Software analyzes data from the device.

(a) Dorshow RB et al. <https://doi.org/10.1016/j.kint.2024.06.012>

## Advantages of tGFR Measurement

- Longitudinal GFR measurements in the animal are possible.
- System can be used in conscious, freely-moving mice, rats, and larger animals for up to 24 hours.
- Changes in tGFR can be observed earlier compared to endogenous markers.
- Streamlined specimen-free trial design and execution are the result.

## Preclinical MX – Technical Specifications

The instrument contains light emitting diodes which excite the fluorescent tracer agent and a photodiode that collects the light emission.

After amplification and digitization, the data sets are subsequently stored in the internal memory of the device. The data is transferred to a PC or Mac via USB connection. The Lab 3 software package is provided with the device. For each transfer, an additional MediBeacon Measurement Code must be used. Measurement Codes are acquired together with each order of consumables. An advanced evaluation software product (Studio 3) is sold separately.

Kits including consumables and measurement codes required for use of the Preclinical MX are sold separately.<sup>(b)(c)</sup>

(b) NOT FOR HUMAN USE

(c) For information regarding compatible fluorescent tracer agents contact us at [sales@medibeacon.com](mailto:sales@medibeacon.com).



## About MediBeacon

MediBeacon is a medical technology company specializing in the advancement of fluorescent tracer agents and transdermal detection. MediBeacon's use of proprietary fluorescent tracer agents coupled with transdermal detection technology focuses on providing vital and actionable assessment of organ function.

MediBeacon owns over 55 granted U.S. patents and over 250 granted patents worldwide that provide extensive coverage of the MediBeacon® Transdermal GFR System, including Lumitrace® injection, the sensor and algorithms, as well as the preclinical technology, and other strategic uses of its proprietary pyrazine platform and sensor technology. The TGFR™ System is approved by the FDA and the NMPA for human use. The TGFR™ System is comprised of the TGFR™ Reusable Sensor, TGFR™ Disposable Ring, TGFR™ Monitor, and Lumitrace® (relmapirazin) injection, which together allow assessment of kidney function by measuring the clearance rate of the fluorescent agent as it leaves the body.

The MediBeacon Preclinical MX (not approved for human use) allows calculation and tracking of an animal's kidney function over time without requiring the animal to be restrained during monitoring. The transdermal GFR methodology (tGFR) is used extensively in preclinical research with over 700 peer-reviewed publications and conference abstracts in which the tGFR technique has been used.

MediBeacon is based in St. Louis, Missouri, with additional operations in Mannheim, Germany.

**For more information about MediBeacon's products, please visit: [www.medibeacon.com](http://www.medibeacon.com).**

## MediBeacon® Transdermal GFR System approved via PMA P230019

See [ifu.medibeacon.com](http://ifu.medibeacon.com) for the Indication for Use and Important Safety Information about the TGFR™ System including Lumitrace® injection, MediBeacon's FDA and NMPA approved transdermal kidney function product.



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