



Digital Endpoints:

Objective Data for Smarter Clinical Trials

Discover Replior's family of sensors, designed to capture precise, device-reported data that complements patient-reported outcomes for more reliable clinical research.



[Smart Ring overview](#)

[RaySense overview](#)



Replior Smart Ring: Scratch & Sleep

A ring-form wearable for objective, continuous measurement of **scratching behaviour** and **sleep patterns** in clinical trials.



Hardware & Ops (summary)

- Form factor: ring; lightweight ~11 g; durable, waterproof build (silver housing, polycarbonate bezel)
- Sizing: 11 sizes (US 5–15); interchangeable shells; supports 1–2 sensors per hand
- Connectivity: Bluetooth Low Energy 5.4; automatic sync via smartphone app
- Battery: ~5–12 days per charge (usage dependent). On-device storage: ~2–4 weeks
- Charging: cradle that docks up to 4 devices



Scratch: Defined Measurements

- ▮ Bout Duration
- ▮ Number of Events
- ▮ Events Frequency
- ▮ Movement Type
- ▮ Intensity (mild, moderate, severe)
- ▮ Total Scratch Bouts
- ▮ Total Scratch Duration
- ▮ Scratch Pressure
- ▮ Scratch Intensity (composite)



Smart Ring front

Sleep Quality: Defined Measurements

- ▮ Time Sleep Opportunity (TSO)
- ▮ Total Sleep Time (TST)
- ▮ Sleep Onset Latency (SOL)
- ▮ Wake After Sleep Onset (WASO)
- ▮ Sleep Efficiency (SE)
- ▮ Number of Awakenings (NOA)



Smart Ring back

Nocturnal Scratch (aggregated)

- ▮ Nocturnal Scratch Time (NST, min; % of sleep window)
- ▮ % Time Scratching
- ▮ Episode Duration (median/mean, s) and Inter-Episode Interval (s)
- ▮ Circadian Distribution
- ▮ Hand/Side Specificity



Sensor Home base



Replior RaySense

Accurate Light Exposure Tracking for Clinical Trials.

Track **UV exposure** for precise, **real-time clinical data** to improve study accuracy and patient compliance.

Direct integration

- Wearable sensor directly integrated with ePRO system
- Drives engagement and compliance for ePRO
- Fitzpatrick skin type (light tolerance factor) optionally entered during enrollment for tailored thresholds and notifications
- Groups / treatment arms with customizable differences, blinded, scheduling, questionnaires, eDiaries etc.
- 'Wearing factor' compensation for sensor orientation
- Clothing/Exposed body surface input in app



Aggregated Dose and Real-time UVI + RGB + IR

- ▶ Dynamic sampling, 2-minute average UVI+RGB+IR logging
- ▶ Configurable graphs: daily / weekly UVI dose in mobile App
- ▶ Real-time UVI / light intensity display in App
- ▶ Tailored thresholds and dose notifications

Proximity- , skin temp and accelerometer

- ▶ Detects if optical sensors are covered and sampling invalid
- ▶ Detects user behaviour and compliance



UV Sensor as a ring



UV Sensor on a wristband

Flexible Wearing Options for the UV Sensor



UV Sensor on a clip

