

## One-Size Fits All\*



\* Per Gender

Standard vest  Modular add-on

## AstroRad Specification

Radiation Protection Benefit	58% reduction in whole-body effective dose*, significantly reduces Radiation Exposure Induced Death (REID) resulting from cancer or acute effects <small>* Based on measurements from the Artemis I mission, extrapolated to the August 1972 solar particle event.</small>	Confirmed on Artemis I via proton irradiation during Van Allen Belt passage
Safety	Passed the NASA payload safety review and approval process for ISS and Orion cabin environment	- Evaluated on ISS - Flew on Artemis I
Main Materials	Shielding Core: High Density Polyethylene (HDPE), Polyamide Outer Fabric Shell: Meta-aramid, Para-aramid, Modacrylic, Aluminum, Polyamide	Flammability and outgassing Tested at White Sands Test Facility, Materials registered on MAPTIS
Sizing	Option 1: Customized per individual, tailored to specific internal anatomy based on MRI scan Option 2: Generic sizing, multiple sizes fit all	Optimization of sizing and comfort through prefitting
Mass	22 - 27 kg. / 48.4 - 59.5 lbs (size dependent)	Next generation 3D printing application on board using onboard waste material

[www.stemrad.com](http://www.stemrad.com)

802 E Whiting St., Tampa, Florida 33602, USA · Tel: +1 650 388 9112  
 2 Ha-Tidhar St., Ra'anana, 4366504, Israel · Tel: +972 3 9195580  
 Email: [info@stemrad.com](mailto:info@stemrad.com)

# ASTRO RAD<sup>®</sup> DATASHEET

In Collaboration with  
**LOCKHEED MARTIN**

## Shielding Astronauts from Spaceborne Radiation

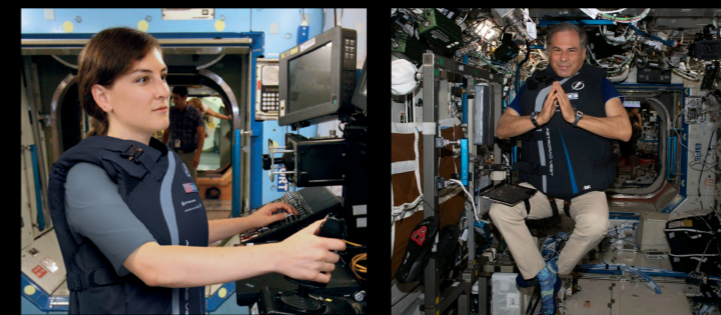
U.S. Patent No. 11,222,733 / 10,276,273 / 10,790,068

- In the event of a solar particle event, astronauts will be exposed to dangerously high dose rates.
- Through the technological innovation of selectively shielding sensitive organs and the stem cells within them, StemRad has made protection from space radiation possible.
- AstroRad enables crew to exit the storm shelter to perform important activities even in the midst of a solar storm.
- AstroRad dramatically reduces Radiation Exposure Induced Death (REID) while eliminating the possibility of Acute Radiation Syndrome (ARS).
- Certified for operational use in both ISS and Orion cabin environments.



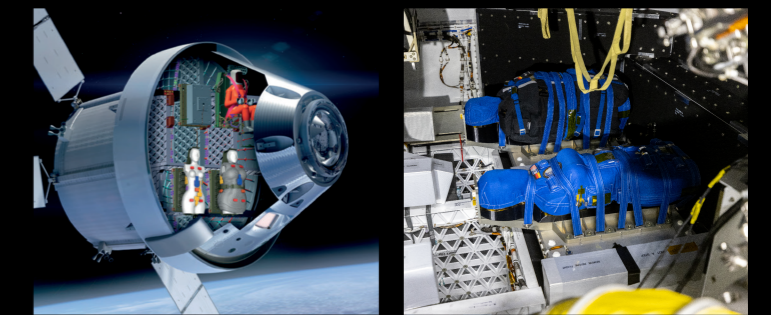
 Deployable alone or in combination with on-board storm shelter	 Enabler of deep-space missions	 Highly effective against Solar Particle Events (SPE)	 Advanced ergonomics enabling long-duration use
 Maximum mobility without compromising shielding	 Fully compatible with current vehicle architectures	 Payload reduction through additive manufacturing from on-board recyclables	 Tested by both NASA and private crew members

### Evaluated onboard the International Space Station:



**CHARGE** - Ergonomic Testing of AstroRad Aboard ISS. In collaboration with Lockheed Martin and the ISS National Lab.

### Tested on NASA's Artemis I around the Moon:

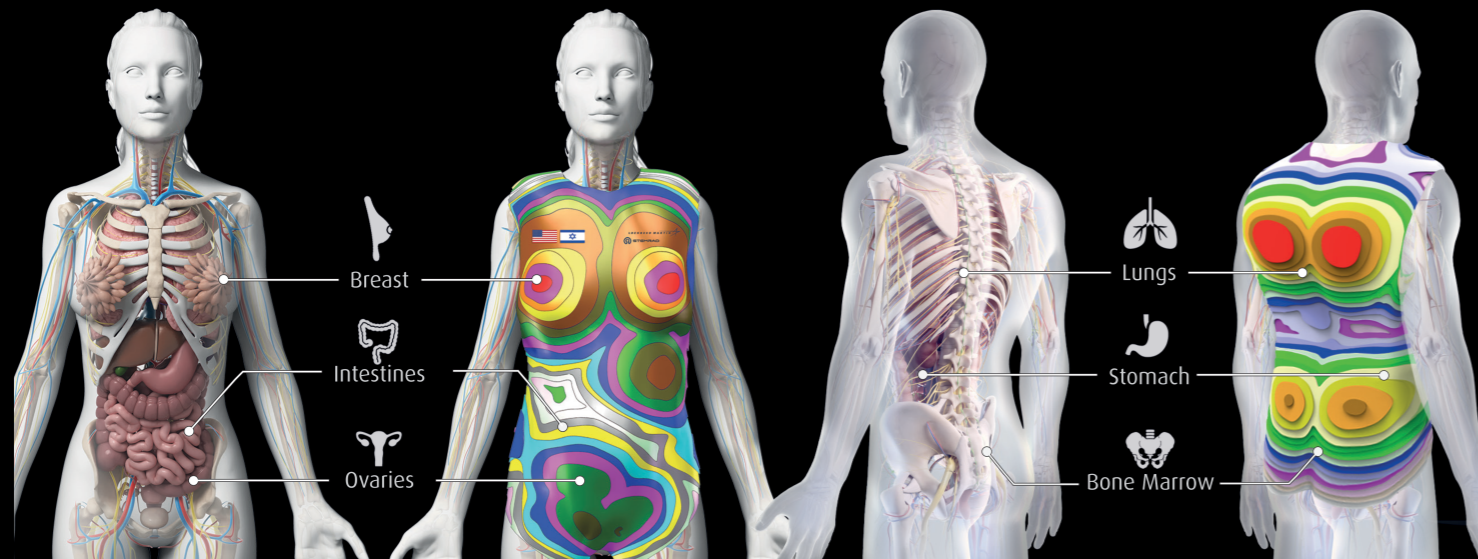


**MARE** - Matroshka AstroRad Radiation Experiment: A collaboration in deep space aboard Orion Artemis I, between NASA, ISA and DLR.

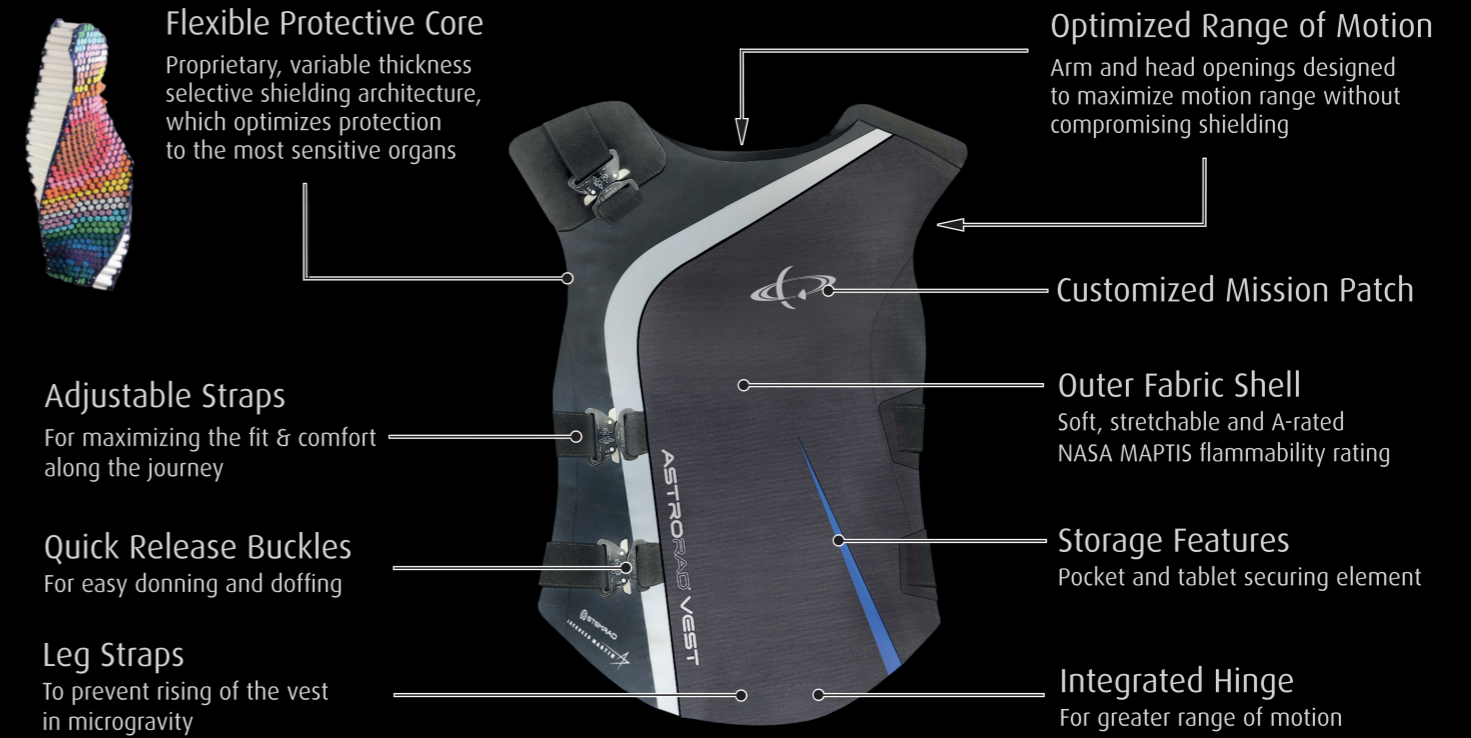
Partners:



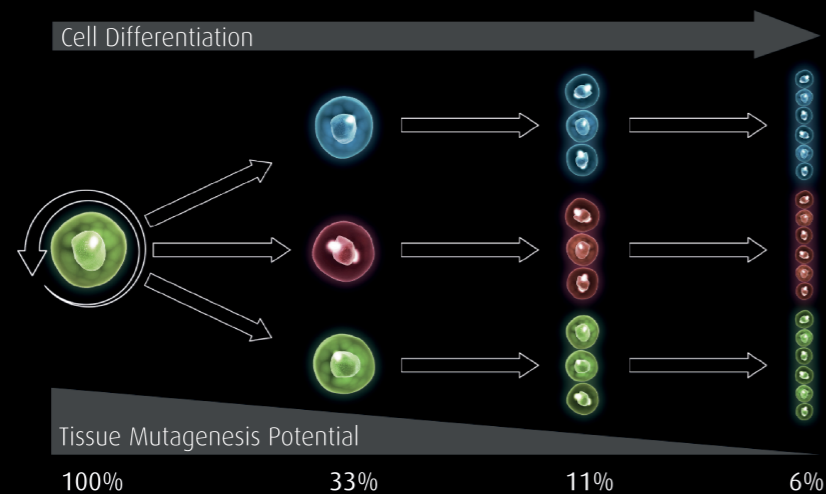
## Proprietary Smart Shielding that Focuses Protection on the most Vulnerable Organs



## AstroRad Features



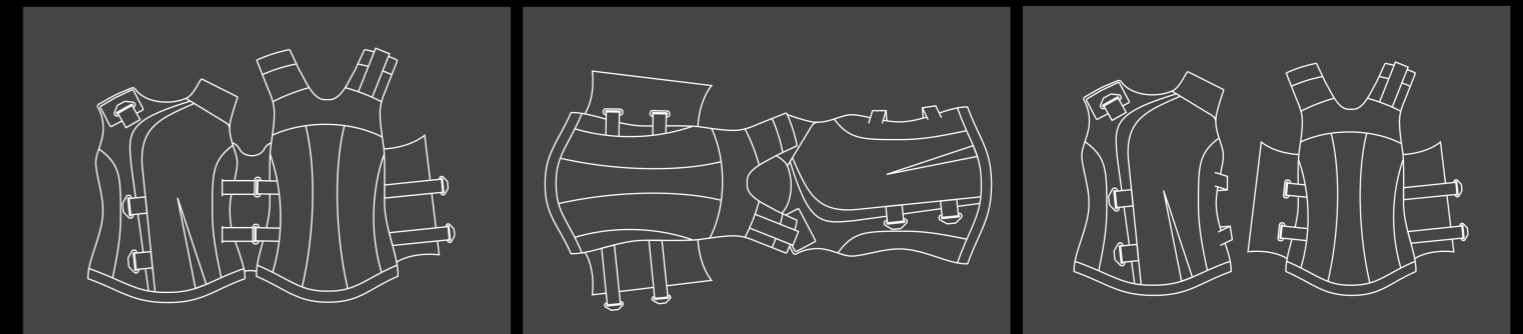
## Preventing Cancer through Enhanced Protection of Stem Cells



A mutated stem cell produces thousands of mutated daughter cells, exponentially increasing the likelihood of cancer. StemRad's smart shielding spares stem cell rich organs from radiation, dramatically reducing the likelihood of cancer within the body.

## Dual Use

Easily reconfigured into wall-mounted protective panels



Option A

Option B

Option C

2.86 ft<sup>2</sup> - 4.56 ft<sup>2</sup> / 0.87 m<sup>2</sup> - 1.39 m<sup>2</sup>  
(size dependent)

Front Panel:  
0.97 ft<sup>2</sup> - 0.39 ft<sup>2</sup> / 0.3 m<sup>2</sup> - 0.4 m<sup>2</sup>  
Back Panel:  
1.54 ft<sup>2</sup> - 2.03 ft<sup>2</sup> / 0.47 m<sup>2</sup> - 0.62 m<sup>2</sup>  
(size dependent)