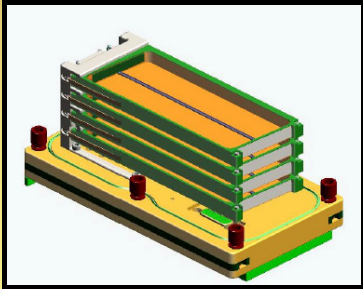




[www.n-usoc.no](http://www.n-usoc.no)

# GENARA EMCS – Gravity Regulated Genes in *Arabidopsis thaliana*



**GENARA**  
**EMCS – Gravity Regulated Genes in**  
***Arabidopsis thaliana***

Dr. Eugenie Carnero-Diaz, Université Pierre et  
Marie Curie, France

**N-USOC:** The mission of the Norwegian User Support and Operation Centre (N-USOC) is to provide qualified support to International Space Station (ISS) related life science activities in general and the EMCS in specific.

**EMCS:** The European Modular Cultivation System (EMCS) is an ESA gravitational biology payload to be operated on board the U.S. "Destiny" Laboratory on the ISS.

**GENARA:** The goal of the GENARA experiment is to address the existence of genes that are regulated by gravity, and whose expression depends upon the mechanism of gravisensing and the redistribution of hormones (especially IAA, i.e. the plant hormone auxin [indole-3-acetic acid] and ABA [abscisic acid]). Growth of the *Arabidopsis* will be followed by optical observation. Transgenic (i.e. gene-modified) plants, harboring either IAA or ABA responsive elements will be used. These elements specifically drive the expression of a reporter gene. These local bio-monitors will report the local (re)distribution of IAA and ABA at the plants' tissue level for plants cultivated under 1xg reference conditions.

The hardware developer for GENARA is EADS Space Transportation, Friedrichshafen, Germany.

**Point of Contact:**

**N-USOC Management:** Knut R. Fossum,  
[knut.fossum@bio.ntnu.no](mailto:knut.fossum@bio.ntnu.no)

**Integration Engineer:** Carina Helle Berg,  
[carina.berg@bio.ntnu.no](mailto:carina.berg@bio.ntnu.no)

**Principal Investigator:** Dr. Eugenie Carnero-Diaz,  
[Eugenie.Carnero@snv.jussieu.fr](mailto:Eugenie.Carnero@snv.jussieu.fr)