

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Radiation Fields, Effects and Risks in Human Space Missions (5)

Author: Mrs. María Carolina Erazo Muñoz
Skolkovo Institute of Science and Technology, Russian Federation, mcarolinaerazo@gmail.com

DYNAMIC PROGRAMMING FOR PROTEIN ALIGNMENT: ANALYZING SPACE'S SEQUENCED
DATA**Abstract**

Since space exploration became a reachable goal, the identification of the effects of diverse factors such as microgravity, radiation, isolation, and else; over the human body, has been a main goal itself. Multiple physiological studies have identified macroscopic changes and risk factors associate with space's environment; but at a genetical level questions arise even more. Space agencies have made a constant effort by sequencing the genetic data of participants, human and animal; and other organisms involved in simulated or space bound projects, and this huge amount of data holds potential as to be analysed to decode some specific changes that could derive in health concerns for the space explorers. Studying protein sequences is a way to visualize mutations, and so get closer to infer effects. To compare obtained proteins with the known sequences and structures seems as an important step towards main findings. In this work we intend to use Dynamic programming algorithms to study selected sequences obtained in space-related experiments; available in Nasa-Genelab database; by comparing them with known sequenced proteins in other contexts, and to test the effectivity of this algorithm against standard bioinformatic tools, to find mutated areas and similarities that could translate in change of the biological function of said protein.