vey, mothers are followed and measured during pregnancy. The weight of the newborn is correlated with all maternal variables, including gestational age, birth weight, pre-pregnancy weight, mainly weight gain at birth, except for mother's stature. A genetic effect between mother and child is corroborated by significant positive correlation between the birth weight of the newborn and the mother.

THE IMPACT OF HUMAN GENETICS IN DRUG DISCOVERY

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Choosing the right biological target is the critical primary decision for the development of new drugs. Systematic genetic association testing of both human diseases and quantitative traits, along with resultant findings of coincident associations between them, is becoming a powerful approach to infer drug targetable candidates and generate *in vitro* tests to identify compounds that can modulate them therapeutically. Here, we discuss opportunities and challenges, and infer criteria for the optimal use of genetic findings in the drug discovery pipeline.

SPACE MEDICINE: USE OF EX VIVO HUMAN RESPIRATORY MUCOSA IN THE SURVEY OF THE EFFECTS OF MICROGRAVITY ON THE RESPIRATORY SYSTEM

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In the near future, the length and scope of space travel is set to increase significantly. The number of individuals who will have access to extra-terrestrial travels is also increasing. In view of the growing international interest towards manned long-term space exploration, possible effects of exposure to microgravity conditions affecting the respiratory system are subject of interest by major space agencies (NASA and ESA primarily). Our team has developed an advanced 3d tissue model of the human bronchial mucosa within a wide research project involving several universities and space agencies at international level. The model will be used to study the structural/functional alterations of the bronchial mucosa that may arise from prolonged exposure to reduced gravity conditions. Among the different modifications to be evaluated: development and performance of the pulmonary barrier; possible ciliogenesis modification due to its effects on fluid mechanics and mechanotransduction; formation of multi-cellular structures (Cell-Cell and ECM-Cell Interactions). The design and realization of experiments aboard the International Space Station (ISS) often clashes with greater difficulties than at ground level. Our work was to check the resilience of the model to the prohibitive environmental conditions present on board the vectors that transport the samples to the ISS, and to adapt the model to engineering requirements for proper functionality within the BIOLAB of ISS itself. To verify this, cell cultures were subjected to various boundary conditions: temperatures lower than growth optimum, reduced concentrations of CO_2, restriction of gas exchange, prolonged starvation and storage of the culture medium at high temperatures. The bronchial mucosa cultures were analysed at the end of the treatments and their morphology was evaluated. We also used the monitoring of the Trans Epithelial Electric Resistance to evaluate the state of health of the cultures. The data obtained demonstrated how this culture model is able to overcome the critical phases of the journey to ISS and how it can conform to restrictive engineering requirements. It is possible to assert that in addition to the accurate reproduction of the bronchial human mucosa, the cell culture model possesses the characteristics necessary to be used in studies in an extreme environment such as the ISS, being able to provide data that could be relevant for future manned spaceflights.

CANCER EPIDEMIOLOGY IN ITALIAN MILITARY PERSONNEL DEPLOYED ABROAD (AGE LESS THAN 60 YEARS, 1996-2012). FROM THE DATA OF THE INQUIRY PARLIAMENTARY COMMISSION ON DEPLETED URANIUM AND VACCINES

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Since the 2000s the Ministry of Defense has conducted studies on Italian military personnel, identifying both excesses for Hodgkin's lymphomas and unexpected reductions for all the tumors. Re-analyze the incidence and mortality for the tumors recorded in the 1996-2012 period by the Epidemiological Observatory of Defense (OED) and by the Inquiry Parliamentary Commission (2016-2018). Cancer cases diagnosed among male militaries aged between 20 and 59 (3,665 cases; 60% of total), enrolled in the 4 armed forces (FFAA) Air force, Carabinieri, Army and Navy were analyzed. The group of militaries involved in at least one mission abroad ("Missionaries": No. 874; 23.8%) was compared with the "Non Missionaries" (N. 2,791; 76.2%). In the study period, 5,225,153 person-years were estimated (21.7% in the Missionaries). The incidence (SIR) and mortality ratio (SMR) standardized by age were calculated estimating also the 90% confidence interval. Among the "Missionaries" the SIRs were significantly increased for the overall 4 FFAA (874 cases; SIR = 112): Army (n = 498; SIR = 116.6), Air force (n = 115; SIR = 126.7) and Carabinieri (n = 168; SIR = 152.8). The Navy appeared significantly "protected" (n = 93; SIR = 60.9). The excesses of risk in the set of Missionaries for both SIR and SMR seem to be consistent with the previous ones and with what was perceived by the military themselves. It is confirmed the need to acquire more complete and updated data on both the health of the militaries (non-neoplastic diseases, post-2012 diagnosis, aged over 60, women, children, spontaneous abortion, etc.)