Administration of RLIP76-PL was subcutaneous or intramuscular on a prophylactic (administered up to 20 h prior to irradiation) or therapeutic (administered up to 36 h after irradiation) schedule.

Results: As a prophylactic, there was 100% survival compared to 33% of the controls when mice were given three doses and exposed to 8.1 Gy. As a therapeutic, the drug is not administered until 24hrs after irradiation and remarkably, there is 92% survival compared to 8% of the controls.

Conclusions: Combined data of many studies show that when compared to controls, treated mice exposed to LD50s, LD70s, or LD90s resulted in survival ranging from 50-80% over the controls. RLIP76-PL is a strong candidate to protect the population from acute radiation exposure.

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Cancer prevention strategies in different countries: Qualitative and quantitative differences

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Abstract

In this presentation quantitative as well as qualitative analyses are reported regarding the communication strategies in the field of cancer prevention in the English-speaking world as compared to Italian-speaking world. The quantitative analyses were based on the occurrence of specific keywords in the global literature accessible via internet as well as on the chromatic-complexity investigated in a total of 1400 images. Such images refer to the "prevention" field and were taken from internet English-domains and Italian-domains. This study represents a preliminary report regarding a novel linguistic approach to assess the efficacy of cancer prevention strategies. The conclusions indicate significant and relevant quantitative differences between communication strategies having language differences.

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Methodologies and limitations in the analysis of potential neuroprotective compounds derived from natural products

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Abstract

Polyphenols, such as flavonoids found in a variety of plant species, have attracted the attention of scientists, the public, and the media due to their potential use as nutraceutical products. The high quantities of polyphenols found in some berry species, e.g. Vaccinium species such as blueberries and lingonberries, and their reported antioxidant and anti-inflammatory properties, could be beneficial for brain aging and neurodegenerative disorders. The neuroprotective potential of various polyphenolic compounds have been validated using a variety of in vivo and in vitro techniques, and they are often evaluated initially using in vitro cell culture techniques in order to establish toxicity and effective concentrations. Both in vivo and in vitro methodologies have their respective advantages and disadvantages, including, but not limited to, cost, time, use of resources and technical limitations. This presentation is meant to elaborate on the inherent benefits and drawbacks of in vitro and in vivo methods for assessing neuroprotection, especially in light of proper evaluation of compound efficacy and neural bioavailability. For example, in vivo studies can better evaluate the effects of protective compounds and/or their metabolites on various tissues, including the brain, in the whole animal, whereas in vitro studies can better discern the cellular and/or mechanistic effects of compounds. In particular, I aim to address the question of appropriate and accurate extrapolation of findings from in vitro experiments where compounds are often directly applied to cellular extracts, potentially at higher concentrations than would ever cross the blood-brain barrier to the more complex scenario of neuroprotection due to pharmacodynamics in vivo.

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A newly human developed diabody against CD99 delivers a lethal signal through p53 pathway reactivation in Ewing sarcoma cells and synergistically acts with doxorubicin

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Abstract

Ewing sarcoma is the second most frequent primary tumor of bone, preferentially occurring in children and adolescents. Despite significant improvements have been achieved in localized tumors thanks to dose intensification of chemotherapy, outcome of patients with metastasis at diagnosis remains grim. In addition, even in the most favorable situations, patients must face with important side effects which significantly impact their quality of life. Either scientific and patient communities are now very sensitive on the need of new drugs**,** which may reduce chemotherapy toxicity while maintaining effectiveness of current regimens. We present here a new engeneered human bivalent single chain fragment variable diabody (C7 scFv diabody) directed against CD99, a transmembrane protein whose high expression characterizes Ewing sarcoma. The triggering of CD99 with C7scFv diabody induces rapid and massive Ewing sarcoma cell death through MDM2 ubiquitination and p53 reactivation. Accordingly, the most CD99-responsive Ewing sarcoma cells have transcriptional active p53 and greatly benefit from MDM2 degradation. CD99 triggering also potentiates the cytotoxic effect of doxorubicin in vitro and in vivo and reactivates p53 to a much greater degree, which in turn markedly increased expression of pro-apoptosis genes. Evaluation of Ki-67 labelling and apoptosis rate by TUNEL confirms the efficacy of the treatment in xenografts. In contrast, mesenchymal stem cells, though expressing high levels of CD99, show no p53 activation and escape death induced by CD99 C7scFv diabody. No sign of toxicity was observed in mice treated with anti-CD99 scFV C7 diabody. Overall, our data provide the rationale for the use of this newly developed anti-CD99 diabody in the treatment of patients with Ewing sarcoma.

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A big data platform to enable integration of high quality clinical data and next generation sequencing data

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Abstract

Today, personalized medicine is closer to reality than ever before through targeted treatment, however, the substantial increase in data correspondingly requires scalable systems to continue to effectively manage the data and to remain current with advancing technology. As organizations move to advance translational research to achieve personalized medicine, researchers and clinicians must manage informatics, however, there is a shortage of fully