SUPPORT

Title: Phosphorylation of ATM by Cdk5 mediates DNA damage signaling and regulates neuronal death

Abstract: [1] The phosphatidylinositol-3-kinase-like kinase ATM (ataxia-telangiectasia mutated) has a central role in coordinating DNA damage responses, including cell-cycle checkpoint control, DNA repair and apoptosis. [2] Mutations of ATM cause a spectrum of defects ranging from neurodegeneration to cancer predisposition. [3] However, the mechanism by which DNA damage activates ATM is poorly understood. [4] Here we show that Cdk5 (cyclin-dependent kinase 5), activated by DNA damage, directly phosphorylates ATM at Ser 794 in post-mitotic neurons. [5] Phosphorylation at Ser 794 precedes, and is required for, ATM autophosphorylation at Ser 1981, and activates ATM kinase activity. [6] The Cdk5-ATM signal regulates phosphorylation and function of the ATM targets p53 and H2AX. [7] Interruption of the Cdk5-ATM pathway attenuates DNA-damage-induced neuronal cell cycle re-entry and expression of the p53 targets PUMA and Bax, protecting neurons from death. [8] Thus, activation of Cdk5 by DNA damage serves as a critical signal to initiate the ATM response and regulate ATM-dependent cellular processes.

Question: Phosphorylation of the ATM protein regulates DNA damage-induced neuronal death. True, False, or Neither?

Answer:

Chatgpt: True

NEI

Title: CELL POPULATION KINETICS OF AN OSTEOGENIC TISSUE · I

Abstract: [1] Cell proliferation on the actively growing periosteal surface of the femur of rabbits aged 2 weeks has been investigated using autoradiographic techniques. [2] Injections of tritiated glycine and tritiated thymidine were given simultaneously and the animals sacrificed at intervals from 1 hour to 5 days after injection. [3] The glycine labeled the position of the bone surface at the time of injection and the thymidine labeled the cells which were synthesising DNA. [4] The rate of increase in the cell population was determined by counting the number of cells beyond the glycine label at different times after injection. [5] The cell kinetics of the fibroblast-pre-osteoblast-osteoblast-osteocyte system has been studied. [6] The fibroblasts are relatively unimportant from the point of view of increase in the cell population. [7] The main site of cell proliferation is the layer of pre-osteoblasts on the periosteal surface. [8] The rate of movement of cells from the pre-osteoblast to the osteoblast and osteocyte compartments has been measured. [9] The incorporation of osteoblasts into the bone is not a random process, but it appears that the osteoblast must spend a certain time on the periosteal surface before becoming either an osteocyte or a relatively inactive osteoblast lining an haversian canal. [10] It was estimated that, on an average, an osteoblast produces 2 or 3 times its own volume of matrix during its most active period on the periosteal surface.

Question: Electromagnetic interference has no effect on Radio Frequency Identification (RFID) readability and reading distances. True, False, or Neither?

Answer:

Chatgpt: NEI

NEI

Title: Molecular profiling of tumor cells in cerebrospinal fluid and matched primary tumors from metastatic breast cancer patients with leptomeningeal carcinomatosis.

Abstract: [1] Although leptomeningeal carcinomatosis is a well-established clinical syndrome, virtually nothing is known about the tumor cells responsible for this particularly aggressive metastatic process. [2] To isolate cerebrospinal fluid-derived tumor cells (CSFTC) from 15 patients with metastatic breast cancer diagnosed with leptomeningeal carcinomatosis, CSF samples were subjected to a two-step method involving immunomagnetic enrichment and fluorescence-activated cell sorting (IE/FACS), a technique previously used for isolating circulating tumor cells (CTC) from blood. [3] CSFTCs were subjected to genome-wide copy number analysis by array comparative genomic hybridization. [4] Genomic profiling was successfully performed for 13 of 15 patients (87%). [5] Copy number analysis in CSFTCs revealed genomic alterations commonly observed in primary breast cancer and CTCs, indicating their malignant origin. [6] Interestingly, 12 (92%) harbored high-level gains on the 8q24 locus, which includes the MYC oncogene. [7] Comparison of CSFTCs against corresponding archival primary tumors in six patients revealed clonal relationships with some divergence. [8] Good concordance among serial samples attested to the reproducibility of the assay. [9] Our approach for isolation and molecular analysis of CSFTCs yielded new insights into the molecular nature of these cells. [10] Further genomic and functional analyses may help elucidate mechanisms by which tumor cells metastasize to the central nervous system.

Question: Low saturated fat diets do not have adverse effects on growth or development of infants. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: A nonfucosylated variant of the anti-HIV-1 monoclonal antibody b12 has enhanced FcγRIIIa-mediated antiviral activity in vitro but does not improve protection against mucosal SHIV challenge in macaques.

Abstract: [1] Eliciting neutralizing antibodies is thought to be a key activity of a vaccine against human immunodeficiency virus (HIV). [2] However, a number of studies have suggested that in addition to neutralization, interaction of IgG with Fc gamma receptors (FcγR) may play an important role in antibody-mediated protection. [3] We have previously obtained evidence that the protective activity of the broadly neutralizing human IgG1 anti-HIV monoclonal antibody (MAb) b12 in macaques is diminished in the absence of FcγR binding capacity. [4] To investigate antibody-dependent cellular cytotoxicity (ADCC) as a contributor to FcγR-associated protection, we developed a nonfucosylated variant of b12 (NFb12). [5] We showed that, compared to fully fucosylated (referred to as wild-type in the text) b12, NFb12 had higher affinity for human and rhesus macaque FcγRIIIa and was more efficient in inhibiting viral replication and more effective in killing HIV-infected cells in an ADCC assay. [6] Despite these more potent in vitro antiviral activities, NFb12 did not enhance protection in vivo against repeated low-dose vaginal challenge in the simian-human immunodeficiency virus (SHIV)/macaque model compared to wild-type b12. [7] No difference in protection, viral load, or infection susceptibility was observed between animals given NFb12 and those given fully fucosylated b12, indicating that FcγR-mediated activities distinct from FcγRIIIa-mediated ADCC may be important in the observed protection against SHIV challenge.

Question: 25% of patients with melanoma and an objective response to PD-1 blockade will experience a progression in their melanoma. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: Regulated Accumulation of Desmosterol Integrates Macrophage Lipid Metabolism and Inflammatory Responses

Abstract: [1] Inflammation and macrophage foam cells are characteristic features of atherosclerotic lesions, but the mechanisms linking cholesterol accumulation to inflammation and LXR-dependent response pathways are poorly understood. [2] To investigate this relationship, we utilized lipidomic and transcriptomic methods to evaluate the effect of diet and LDL receptor genotype on macrophage foam cell formation within the peritoneal cavities of mice. [3] Foam cell formation was associated with significant changes in hundreds of lipid species and unexpected suppression, rather than activation, of inflammatory gene expression. [4] We provide evidence that regulated accumulation of desmosterol underlies many of the homeostatic responses, including activation of LXR target genes, inhibition of SREBP target genes, selective reprogramming of fatty acid metabolism, and suppression of inflammatory-response genes, observed in macrophage foam cells. [5] These observations suggest that macrophage activation in atherosclerotic lesions results from extrinsic, proinflammatory signals generated within the artery wall that suppress homeostatic and anti-inflammatory functions of desmosterol.

Question: The actual sequences of CP-1 and CR-5 regions are evolutionarily conserved throughout most eukaryotes. True, False, or Neither?

Answer:

ChatGPT: NEI

SUPPORT

Title: BCR/ABL oncogenic kinase promotes unfaithful repair of the reactive oxygen species-dependent DNA double-strand breaks.

Abstract: [1] The oncogenic BCR/ABL tyrosine kinase induces constitutive DNA damage in Philadelphia chromosome (Ph)-positive leukemia cells. [2] We find that BCR/ABL-induced reactive oxygen species (ROSs) cause chronic oxidative DNA damage resulting in double-strand breaks (DSBs) in S and G(2)/M cell cycle phases. [3] These lesions are repaired by BCR/ABL-stimulated homologous recombination repair (HRR) and nonhomologous end-joining (NHEJ) mechanisms. [4] A high mutation rate is detected in HRR products in BCR/ABL-positive cells, but not in the normal counterparts. [5] In addition, large deletions are found in NHEJ products exclusively in BCR/ABL cells. [6] We propose that the following series of events may contribute to genomic instability of Ph-positive leukemias: BCR/ABL --> ROSs --> oxidative DNA damage --> DSBs in proliferating cells --> unfaithful HRR and NHEJ repair.

Question: Genomic instability in leukemia cells results from an increase in reactive oxygen species from oncogene activation. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: The Translation Initiation Factor 3f (eIF3f) Exhibits a Deubiquitinase Activity Regulating Notch Activation

Abstract: [1] Activation of the mammalian Notch receptor after ligand binding relies on a succession of events including metalloprotease-cleavage, endocytosis, monoubiquitination, and eventually processing by the gamma-secretase, giving rise to a soluble, transcriptionally active molecule. [2] The Notch1 receptor was proposed to be monoubiquitinated before its gamma-secretase cleavage; the targeted lysine has been localized to its submembrane domain. [3] Investigating how this step might be regulated by a deubiquitinase (DUB) activity will provide new insight for understanding Notch receptor activation and downstream signaling. [4] An immunofluorescence-based screening of an shRNA library allowed us to identify eIF3f, previously known as one of the subunits of the translation initiation factor eIF3, as a DUB targeting the activated Notch receptor. [5] We show that eIF3f has an intrinsic DUB activity. [6] Knocking down eIF3f leads to an accumulation of monoubiquitinated forms of activated Notch, an effect counteracted by murine WT eIF3f but not by a catalytically inactive mutant. [7] We also show that eIF3f is recruited to activated Notch on endocytic vesicles by the putative E3 ubiquitin ligase Deltex1, which serves as a bridging factor. [8] Finally, catalytically inactive forms of eIF3f as well as shRNAs targeting eIF3f repress Notch activation in a coculture assay, showing that eIF3f is a new positive regulator of the Notch pathway. [9] Our results support two new and provocative conclusions: (1) The activated form of Notch needs to be deubiquitinated before being processed by the gamma-secretase activity and entering the nucleus, where it fulfills its transcriptional function. [10] (2) The enzyme accounting for this deubiquitinase activity is eIF3f, known so far as a translation initiation factor. [11] These data improve our knowledge of Notch signaling but also open new avenues of research on the Zomes family and the translation initiation factors.

Question: p53 controls autophagy through the AMPK/mTOR-dependent pathway. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: Identification of dual active agents targeting 5-HT1A and SERT by combinatorial virtual screening methods

Abstract: [1] Selective serotonin reuptake inhibitors (SSRIs) are most adopted therapeutics marketed for major depression, and the efficacy of which are greatly reduced by their delayed onset of action and undesirable side effects. [2] 5-HT1A receptor partial agonist and SERT inhibitor (SPARI) was proposed as a novel strategy to overcome the shortage of efficacy by a negative feedback control of 5-HT1A receptor. [3] However, only one SPARI (vilazodone) has been approved for clinical use, and none is currently in clinical trial, which demonstrates a strong need for searching more novel SPARIs to facilitate antidepressants discovery. [4] This work applied a combinatorial virtual screening method (CVSM) by integrating multiple tools. [5] Statistic analysis reveals that CVSM surpasses single virtual screening methods in terms of hit rates and enrichment factors. [6] By adopting optimized CVSM, 91 promising dual target leads form 15 scaffolds were identified, and 40% of these scaffolds have already been reported to show antidepressant related therapeutic effects. [7] In sum, CVSM is capable in identifying novel SPARIs from large chemical libraries with extremely low false hit rate.

Question: A deficiency of folate decreases blood levels of homocysteine. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: RhoA and RhoC have distinct roles in migration and invasion by acting through different targets

Abstract: [1] Several studies suggest that RhoA and RhoC, despite their sequence similarity, have different roles in cell migration and invasion, but the molecular basis for this is not known. [2] Using RNAi, we show that RhoA-depleted cells became elongated and extended multiple Rac1-driven narrow protrusions in 2D and 3D environments, leading to increased invasion. [3] These phenotypes were caused by combined but distinct effects of the Rho-regulated kinases ROCK1 and ROCK2. [4] Depletion of ROCK2 induced multiple delocalized protrusions and reduced migratory polarity, whereas ROCK1 depletion selectively led to cell elongation and defective tail retraction. [5] In contrast, RhoC depletion increased cell spreading and induced Rac1 activation around the periphery in broad lamellipodia, thereby inhibiting directed migration and invasion. [6] These effects of RhoC depletion are mediated by the formin FMNL3, which we identify as a new target of RhoC but not RhoA. We propose that RhoA contributes to migratory cell polarity through ROCK2-mediated suppression of Rac1 activity in lamellipodia, whereas RhoC promotes polarized migration through FMNL3 by restricting lamellipodial broadening.

Question: Near-infrared wavelengths increase penetration depth in fiberoptic confocal microscopy. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: STED nanoscopy with mass-produced laser diodes.

Abstract: [1] We show that far-field fluorescence nanoscopy by stimulated emission depletion (STED) can be realized with compact off-the-shelf laser diodes, such as those used in laser pointers and DVDs. [2] A spatial resolution of 40-50 nm is attained by pulsing a 660 nm DVD-diode. [3] The efficacy of these low-cost STED microscopes in biological imaging is demonstrated by differentiating between clusters of the synaptic protein bassoon and transport vesicles in hippocampal neurons, based on the feature diameter. [4] Our results facilitate the implementation of this all-molecular-transition based superresolution method in many applications ranging from nanoscale fluorescence imaging to nanoscale fluorescence sensing.

Question: High methylation levels within individual DNA molecules correlates with high nucleosome occupancy across species. True, False, or Neither?

Answer:

ChatGPT: NEI

CONTRADICT

Title: Neurological development of 5-year-old children receiving a low-saturated fat, low-cholesterol diet since infancy: A randomized controlled trial.

Abstract: [1] CONTEXT Early childhood introduction of nutritional habits aimed at atherosclerosis prevention is compatible with normal growth, but its effect on neurological development is unknown.

[2] OBJECTIVE To analyze how parental counseling aimed at keeping children's diets low in saturated fat and cholesterol influences neurodevelopment during the first 5 years of life.

[3] DESIGN Randomized controlled trial conducted between February 1990 and November 1996.

[4] SETTING Outpatient clinic of a university department in Turku, Finland.

[5] PARTICIPANTS A total of 1062 seven-month-old infants and their parents, recruited at well-baby clinics between 1990 and 1992. [6] At age 5 years, 496 children still living in the city of Turku were available to participate in neurodevelopmental testing.

[7] INTERVENTION Participants were randomly assigned to receive individualized counseling aimed at limiting the child's fat intake to 30% to 35% of daily energy, with a saturated:monounsaturated:polyunsaturated fatty acid ratio of 1:1:1 and a cholesterol intake of less than 200 mg/d (n = 540) or usual health education (control group, n = 522).

[8] MAIN OUTCOME MEASURES Nutrient intake, serum lipid concentrations, and neurological development at 5 years, among children in the intervention vs control groups.

[9] RESULTS Absolute and relative intakes of fat, saturated fatty acids, and cholesterol among children in the intervention group were markedly less than the respective values of control children. [10] Mean (SD) percentages of daily energy at age 5 years for the intervention vs control groups were as follows: for total fat, 30.6% (4.5%) vs 33.4% (4.4%) (P<. 001); and for saturated fat, 11.7% (2.3%) vs 14.5% (2.4%) (P<.001). [11] Mean intakes of cholesterol were 164.2 mg (60.1 mg) and 192.5 mg (71. 9 mg) (P<.001) for the intervention and control groups, respectively. [12] Serum cholesterol concentrations were continuously 3% to 5% lower in children in the intervention group than in children in the control group. [13] At age 5 years, mean (SD) serum cholesterol concentration of the intervention group was 4.27 (0.63) mmol/L (165 [24] mg/dL) and of the control group, 4.41 (0.74) mmol/L (170 [29] mg/dL) (P =.04). [14] Neurological development of children in the intervention group was at least as good as that of children in the control group. [15] Relative risks for children in the intervention group to fail tests of speech and language skills, gross motor functioning plus perception, and visual motor skills were 0.95 (90% confidence interval [CI], 0.60-1.49), 0.95 (90% CI, 0.58-1.55), and 0.65 (90% CI, 0.39-1.08), respectively (P =.85,.86, and.16, respectively, vs control children).

[16] CONCLUSION Our data indicate that repeated child-targeted dietary counseling of parents during the first 5 years of a child's life lessens age-associated increases in children's serum cholesterol and is compatible with normal neurological development. [17] JAMA. [18] 2000;284:993-1000

Question: Low saturated fat diets have adverse effects on growth or development of infants. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: Involvement of a tissue-specific autoantibody in skin disorders of murine systemic lupus erythematosus and autoinflammatory diseases

Abstract: [1] Human systemic lupus erythematosus (SLE) and its murine model, MRL lpr/lpr mice, are well known to develop a wide range of symptoms, such as glomerulonephritis, dermatitis, and arthritis, as an immune-complex disease. [2] However, the deposition of circulating immune complex does not fully explain the tissue specificity of disease. [3] Tissue-specific autoantigens may also be involved in tissue inflammation. [4] In this study, desmoglein 3 (Dsg3), a major component of epidermal desmosomes, was identified as a skin-specific autoantigen. [5] Several murine models of skin inflammation were found to develop autoantibodies to Dsg3 tightly correlated with disease aggravation, especially in MRL lpr/lpr mice. [6] Furthermore, SLE-prone skin disease-free FcgammaRIIb-deficient mice developed skin inflammation upon immunization with Dsg3. [7] Taken together with histological studies, we concluded that skin-specific Dsg3 serves as an autoantigen in chronic skin inflammatory diseases accompanied by mast cell degranulation, including both murine SLE and other autoinflammatory diseases.

Question: Roughly 10% of women with chronic pelvic pain have no underlying pathology. True, False, or Neither?

Answer:

ChatGPT: Neither

NEI

Title: Transgenerational Inheritance and Resetting of Stress-Induced Loss of Epigenetic Gene Silencing in Arabidopsis

Abstract: [1] Plants, as sessile organisms, need to sense and adapt to heterogeneous environments and have developed sophisticated responses by changing their cellular physiology, gene regulation, and genome stability. [2] Recent work demonstrated heritable stress effects on the control of genome stability in plants—a phenomenon that was suggested to be of epigenetic nature. [3] Here, we show that temperature and UV-B stress cause immediate and heritable changes in the epigenetic control of a silent reporter gene in Arabidopsis. [4] This stress-mediated release of gene silencing correlated with pronounced alterations in histone occupancy and in histone H3 acetylation but did not involve adjustments in DNA methylation. [5] We observed transmission of stress effects on reporter gene silencing to non-stressed progeny, but this effect was restricted to areas consisting of a small number of cells and limited to a few non-stressed progeny generations. [6] Furthermore, stress-induced release of gene silencing was antagonized and reset during seed aging. [7] The transient nature of this phenomenon highlights the ability of plants to restrict stress-induced relaxation of epigenetic control mechanisms, which likely contributes to safeguarding genome integrity.

Question: Bronchial responsiveness is the same in the winter and summer seasons. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: Repeated morphological evolution through cis-regulatory changes in a pleiotropic gene

Abstract: [1] The independent evolution of morphological similarities is widespread. [2] For simple traits, such as overall body colour, repeated transitions by means of mutations in the same gene may be common. [3] However, for more complex traits, the possible genetic paths may be more numerous; the molecular mechanisms underlying their independent origins and the extent to which they are constrained to follow certain genetic paths are largely unknown. [4] Here we show that a male wing pigmentation pattern involved in courtship display has been gained and lost multiple times in a Drosophila clade. [5] Each of the cases we have analysed (two gains and two losses) involved regulatory changes at the pleiotropic pigmentation gene yellow. [6] Losses involved the parallel inactivation of the same cis-regulatory element (CRE), with changes at a few nucleotides sufficient to account for the functional divergence of one element between two sibling species. [7] Surprisingly, two independent gains of wing spots resulted from the co-option of distinct ancestral CREs. [8] These results demonstrate how the functional diversification of the modular CREs of pleiotropic genes contributes to evolutionary novelty and the independent evolution of morphological similarities.

Question: A country's Vaccine Alliance (GAVI) eligibility is associated with accelerated adoption of the Hub vaccine. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: Changes in PKC isoforms in human alveolar macrophages compared with blood monocytes.

Abstract: [1] Alveolar macrophages play an important role in host defense and in other types of inflammatory processes in the lung. [2] These cells exhibit many alterations in function compared with their precursor cells, blood monocytes. [3] To evaluate a potential mechanism for these differences in function, we evaluated expression of protein kinase C (PKC) isoforms. [4] We found an increase in Ca2+-dependent PKC isoforms in monocytes compared with alveolar macrophages. [5] We also found differential expression of the Ca2+-independent isoforms in alveolar macrophages compared with monocytes. [6] One consequence of the activation of PKC can be increased expression of mitogen-activated protein (MAP) kinase pathways. [7] Therefore, we also evaluated activation of the MAP kinase extracellular signal-regulated kinase (ERK) 2 by the phorbol ester phorbol 12-myristate 13-acetate (PMA). [8] PMA activated ERK2 kinase in both alveolar macrophages and monocytes; however, monocytes consistently showed a significantly greater activation of ERK2 kinase by PMA compared with alveolar macrophages. [9] Another known consequence of the activation of PKC and subsequent activation of ERK kinase is activation of the transcription factor activator protein-1 (AP-1). [10] We evaluated the activation of AP-1 by PMA in both monocytes and macrophages. [11] We found very little detectable activation of AP-1, as assessed in a gel shift assay, in alveolar macrophages, whereas monocytes showed a substantial activation of AP-1 by PMA. [12] These studies show that the differential expression of PKC isoforms in alveolar macrophages and blood monocytes is associated with important functional alterations in the cells.

Question: Radiographic verified pneumonia predictions are improved by the combination of physical examinations with C-reactive protein values. True, False, or Neither?

Answer:

ChatGPT: NEI

SUPPORT

Title: A Comparison of Cost Effectiveness Using Data from Randomized Trials or Actual Clinical Practice: Selective Cox-2 Inhibitors as an Example

Abstract: [1] BACKGROUND Data on absolute risks of outcomes and patterns of drug use in cost-effectiveness analyses are often based on randomised clinical trials (RCTs). [2] The objective of this study was to evaluate the external validity of published cost-effectiveness studies by comparing the data used in these studies (typically based on RCTs) to observational data from actual clinical practice. [3] Selective Cox-2 inhibitors (coxibs) were used as an example.

[4] METHODS AND FINDINGS The UK General Practice Research Database (GPRD) was used to estimate the exposure characteristics and individual probabilities of upper gastrointestinal (GI) events during current exposure to nonsteroidal anti-inflammatory drugs (NSAIDs) or coxibs. [5] A basic cost-effectiveness model was developed evaluating two alternative strategies: prescription of a conventional NSAID or coxib. [6] Outcomes included upper GI events as recorded in GPRD and hospitalisation for upper GI events recorded in the national registry of hospitalisations (Hospital Episode Statistics) linked to GPRD. [7] Prescription costs were based on the prescribed number of tables as recorded in GPRD and the 2006 cost data from the British National Formulary. [8] The study population included over 1 million patients prescribed conventional NSAIDs or coxibs. [9] Only a minority of patients used the drugs long-term and daily (34.5% of conventional NSAIDs and 44.2% of coxibs), whereas coxib RCTs required daily use for at least 6-9 months. [10] The mean cost of preventing one upper GI event as recorded in GPRD was US$104k (ranging from US$64k with long-term daily use to US$182k with intermittent use) and US$298k for hospitalizations. [11] The mean costs (for GPRD events) over calendar time were US$58k during 1990-1993 and US$174k during 2002-2005. [12] Using RCT data rather than GPRD data for event probabilities, the mean cost was US$16k with the VIGOR RCT and US$20k with the CLASS RCT.

[13] CONCLUSIONS The published cost-effectiveness analyses of coxibs lacked external validity, did not represent patients in actual clinical practice, and should not have been used to inform prescribing policies. [14] External validity should be an explicit requirement for cost-effectiveness analyses.

Question: Cost effectiveness evaluations based on cRCT data do not represent patients in actual clinical practice. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: 24 hour ambulatory blood pressure monitoring and left ventricular ejection fraction- prognostic markers in chronic kidney disease

Abstract: [1] Background: Left ventricular systolic dysfunction i.e. <55% is common and an important predictor of risk of cardiac death in chronic kidney disease patients. [2] Ambulatory blood pressure monitoring assists in targeting this population . [3] Methods: Total 160 non diabetic hypertensive patients were enrolled between 10/04/14 to 15/05/15 at M.L.N. Medical College and SRN Hospital, Allahabad, India. [4] Out of them 80 were CKD patients who were taken as cases and remaining 80 patients were non CKD and taken as controls. [5] Ambulatory blood pressure monitoring, clinic BP, eGFR, %LVEF (left ventricular ejection fraction) and other clinical data were collected for 1 year duration. [6] Statistical analysis was done by using unpaired t-test for independent variables. [7] Results: Out of 160 non diabetic hypertensive patients, 48 (60%) cases and 28 (35%) controls were found non-dippers, while remaining 32 (40%) cases and 52 (65%) controls were have dipper BP pattern. [8] Patients with non-dipping BP pattern and low %LVEF had the worst renal function and severe cardiovascular damages (P<0.05). [9] The eGFR and %LVEF shown significant relationship with the rate of decline in nocturnal BP. [10] Conclusions: Ambulatory blood pressure measurement allows a better risk stratification compared to clinic blood pressure measurement. [11] Non-dipping status and low LVEF is closely related to severe renal and cardiovascular damage in CKD patients. [12] Low LVEF and 24-hour ABPM can be used as prognostic markers in non-diabetic CKD patients, and lowering of nocturnal BP will reduce the renal and cardiovascular risk in these patients.

Question: All six cathelicidins are located on chromosome two. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: POLYMORPHISM OF THE α-ACTN3 GENE IN INDIVIDUALS PRACTISING DIFFERENT SPORTS DISCIPLINES

Abstract: [1] In this study the R577X polymorphism of the α-actinin-3 (ACTN3) gene was analysed in relation to physical fitness measured with maximal oxygen uptake (VO2max). [2] The studies were carried out in a group of 154 men and 85 women, students of the University of Physical Education in Poznan and professional athletes representing various sports and fitness levels. [3] In our research physiological and molecular procedures were used, i.e. direct measurement of maximum oxygen uptake (VO2max) and R577X a-ACTN3 genotyping by PCR-RFLP. [4] The results do not confirm some literature data concerning a statistically significant association of R577X polymorphism in the ACTN3 gene and the level of maximal oxygen uptake (VO2max). [5] A trend was observed for higher VO2max values to be found in individuals with the XX and RX genotypes as well as the predominance of the RR genotype in the group of individuals practising speed and power disciplines.

Question: NLRP12 is a positive regulator of T-cell receptor activation. True, False, or Neither?

Answer:

ChatGPT: NEI

NEI

Title: An innovative immunotherapeutic strategy for ovarian cancer: CLEC10A and glycomimetic peptides

Abstract: [1] BACKGROUND ::: Receptors specific for the sugar N-acetylgalactosamine (GalNAc) include the human type II, C-type lectin receptor macrophage galactose-type lectin/C-type lectin receptor family member 10A (MGL/CLEC10A/CD301) that is expressed prominently by human peripheral immature dendritic cells, dendritic cells in the skin, alternatively-activated (M2a) macrophages, and to lesser extents by several other types of tissues. [2] CLEC10A is an endocytic receptor on antigen-presenting cells and has been proposed to play an important role in maturation of dendritic cells and initiation of an immune response. [3] In this study, we asked whether a peptide that binds in the GalNAc-binding site of CLEC10A would serve as an effective tool to activate an immune response against ovarian cancer. ::: ::: ::: METHODS ::: A 12-mer sequence emerged from a screen of a phage display library with a GalNAc-specific lectin. [4] The peptide, designated svL4, and a shorter peptide consisting of the C-terminal 6 amino acids, designated sv6D, were synthesized as tetravalent structures based on a tri-lysine core. [5] In silico and in vitro binding assays were developed to evaluate binding of the peptides to GalNAc-specific receptors. [6] Endotoxin-negative peptide solutions were administered by subcutaneous injection and biological activity of the peptides was determined by secretion of cytokines and the response of peritoneal immune cells in mice. [7] Anti-cancer activity was studied in a murine model of ovarian cancer. ::: ::: ::: RESULTS ::: The peptides bound to recombinant human CLEC10A with high avidity, with half-maximal binding in the low nanomolar range. [8] Binding to the receptor was Ca2+-dependent. [9] Subcutaneous injection of low doses of peptides into mice on alternate days resulted in several-fold expansion of populations of mature immune cells within the peritoneal cavity. [10] Peptide sv6D effectively suppressed development of ascites in a murine ovarian cancer model as a monotherapy and in combination with the chemotherapeutic drug paclitaxel or the immunotherapeutic antibody against the receptor PD-1. [11] Toxicity, including antigenicity and release of cytotoxic levels of cytokines, was not observed. ::: ::: ::: CONCLUSION ::: sv6D is a functional ligand for CLEC10A and induces maturation of immune cells in the peritoneal cavity. [12] The peptide caused a highly significant extension of survival of mice with implanted ovarian cancer cells with a favorable toxicity and non-antigenic profile.

Question: p16INK4A accumulation is encoded by CDKN2A. True, False, or Neither?

Answer:

ChatGPT: True

NEI

Title: Vitamin D and calcium insufficiency-related chronic diseases: molecular and cellular pathophysiology

Abstract: [1] A compromised vitamin D status, characterized by low 25-hydroxyvitamin D (25-(OH)D) serum levels, and a nutritional calcium deficit are widely encountered in European and North American countries, independent of age or gender. [2] Both conditions are linked to the pathogenesis of many degenerative, malignant, inflammatory and metabolic diseases. [3] Studies on tissue-specific expression and activity of vitamin D metabolizing enzymes, 25-(OH)D-1 alpha-hydroxylase and 25-(OH)D-24-hydroxylase, and of the extracellular calcium-sensing receptor (CaR) have led to the understanding of how, in non-renal tissues and cellular systems, locally produced 1,25-dihydroxyvitamin D(3) (1,25-(OH)(2)D(3)) and extracellular Ca(2+) act jointly as key regulators of cellular proliferation, differentiation and function. [4] Impairment of cooperative signalling from the 1,25-(OH)(2)D(3)-activated vitamin D receptor (VDR) and from the CaR in vitamin D and calcium insufficiency causes cellular dysfunction in many organs and biological systems, and, therefore, increases the risk of diseases, particularly of osteoporosis, colorectal and breast cancer, inflammatory bowel disease, insulin-dependent diabetes mellitus type I, metabolic syndrome, diabetes mellitus type II, hypertension and cardiovascular disease. [5] Understanding the underlying molecular and cellular processes provides a rationale for advocating adequate intake of vitamin D and calcium in all populations, thereby preventing many chronic diseases worldwide.

Question: Major vault protein (MVP) functions to decrease tumor aggression. True, False, or Neither?

Answer:

ChatGPT: NEI