gene therapy

	NCT Number	Title	Authors	Description	Identifier	Dates
1	pubmed:36058028	Ru(II)-modified TiO_2 nanoparticles for hypoxia-adaptive photo-immunotherapy of oral squamous cell carcinoma	Jia-Ying Zhou Wen-Jin Wang Chen-Yu Zhang Yu-Yi Ling Xiao-Jing Hong Qiao Su Wu-Guo Li Zong-Wan Mao Bin Cheng Cai-Ping Tan Tong Wu	The alternations in the hypoxic and immune microenvironment are closely related to the therapeutic effect and prognosis of oral squamous cell carcinoma (OSCC). Herein, a new nanocomposite, TiO(2)@Ru@siRNA is constructed from a ruthenium-based photosensitizer (Ru) modified-TiO(2) nanoparticles (NPs) loaded with siRNA of hypoxia-inducible factor-1 (HIF-1). Under visible light irradiation, TiO(2)@Ru@siRNA can elicit both Type I and Type II photodynamic effects, which causes lysosomal damage,...	pmid:36058028 doi:10.1016/j.biomaterials.2022.121757	Sun, 04 Sep 2022 06:00:00 -0400
2	pubmed:36058125	Understanding rates, risk factors, and complications associated with manipulation under anesthesia after total knee arthroplasty (TKA): An analysis of 100,613 TKAs	Pedro J Rullán Guangjin Zhou Ahmed K Emara Alison K Klika Siran Koroukian Nicolas S Piuzzi	CONCLUSION: Overall, 1 in 36 patients underwent MUA after primary TKA. Several non-modifiable patient characteristics, such as Black or Hispanic race, female sex, and younger age were associated with an increased risk of MUA. However, technology-assisted TKA might help to decrease the risk of MUA.	pmid:36058125 doi:10.1016/j.knee.2022.08.009	Sun, 04 Sep 2022 06:00:00 -0400
3	pubmed:36058548	Nomenclature for Cellular and Genetic therapies: A Need for Standardization	Akshay Sharma Stephanie Farnia Folashade Otegbeye Amy Rinkle Jugna Shah Nirali N Shah Saar Gill Marcela V Maus	As the field of cellular and genetic therapies transitions from a scientific concept to a clinical reality, it has become evident that there are several conflicting or imprecise nomenclatures to describe these novel therapeutic products. The lack of uniformity and accuracy in the terminology often creates regulatory, educational, administrative, and billing quagmires. Standardization of the nomenclature for these therapeutic products is essential for a harmonized regulatory and developmental...	pmid:36058548 doi:10.1016/j.jtct.2022.08.029	Sun, 04 Sep 2022 06:00:00 -0400
4	pubmed:36058614	Vasculogenic gene therapy: No role for revitalization of structural bone allografts	Elisa S Rezaie Noortje J Visser Catherine van den Berg Patricia F Friedrich Alexander Y Shin Allen T Bishop	Segmental bone defects are often performed with cryopreserved allografts. They provide immediate stability, but risk non-union, infection and late stress fracture. Improving the rate and extent of bone revitalization may improve results. Angiogenesis from surgically placed arteriovenous(AV) bundles improves bone blood flow and vitality in cryopreserved rat femora, augmented by vasculogenic growth factors. This study tests the same principal in Yucatan mini-pigs with a tibial diaphyseal defect,...	pmid:36058614 doi:10.1002/jor.25438	Sun, 04 Sep 2022 06:00:00 -0400
5	pubmed:36058813	Severe Bartter syndrome type 1: Prompt postnatal management thanks to antenatal identification of SLC12A1 pathogenic variants	D D'Angelantonio S Majore T Di Netta F Zotta G Parise E Savino S Rosignoli B Bizzarri F Signore P Grammatico I Bottillo	Bartter syndrome (BS) refers to a group of hereditary kidney disorders. One antenatal form is Bartter syndrome type 1 (BS1), caused by pathogenic variants in the SLC12A1 gene. We report a case of BS1 presenting with severe polyhydramnios. The fetus was found to carry three pathogenic variants of SLC12A1, leading to the antenatal diagnosis of BS1 and its prompt management. At age 18 days, clinical conditions were complicated by the onset of sepsis requiring supportive measures as well as steroid...	pmid:36058813 doi:10.1016/j.arcped.2022.08.011	Sun, 04 Sep 2022 06:00:00 -0400

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6	pubmed:36058919	Increased expression of METTL3 in pancreatic cancer tissues associates with poor survival of the patients	Yuan Li Hao Huang Yulan Zhu Bin Xu Junjun Chen Yingting Liu Xiao Zheng Lujun Chen	CONCLUSION: Increased METTL3 expression at the protein level could be found in PC tissues, suggesting that the METTL3 expression was involved in the progression of PC and could serve as an important marker for prognostic prediction of this malignancy.	pmid:36058919 doi:10.1186/s12957-022-02743-7	Sun, 04 Sep 2022 06:00:00 -0400
7	pubmed:36058940	Osteoporosis pathogenesis and treatment: existing and emerging avenues	Bo Liang George Burley Shu Lin Yan-Chuan Shi	Osteoporotic fractures lead to increased disability and mortality in the elderly population. With the rapid increase in the aging population around the globe, more effective treatments for osteoporosis and osteoporotic fractures are urgently required. The underlying molecular mechanisms of osteoporosis are believed to be due to the increased activity of osteoclasts, decreased activity of osteoblasts, or both, which leads to an imbalance in the bone remodeling process with accelerated bone...	pmid:36058940 doi:10.1186/s11658-022-00371-3	Sun, 04 Sep 2022 06:00:00 -0400
8	pubmed:36058977	Obtaining a New Gene-Cell Construct Based on Transduced Olfactory Ensheathing Cells for the Treatment of Spinal Cord Injuries	A D Voronova A O Sosnovtseva O V Stepanova A V Chadin E K Karsuntseva G A Fursa I V Reshetov V P Chekhonin	We developed a viral vector Ad5/35-CAG-mBDNF expressing the mature form of BDNF (mBDNF). On the basis of olfactory ensheathing cells transduced with this adenovector, a new gene-cell construct was obtained. In experiments in vitro, high viability of the transduced olfactory ensheathing cells and enhanced secretion of BDNF by these cells were observed. It is possible that a new gene-cell construct will significantly increase the regenerative effects of transplanted olfactory ensheathing cells.	pmid:36058977 doi:10.1007/s10517-022-05576-2	Sun, 04 Sep 2022 06:00:00 -0400
9	pubmed:36059009	RET fusions as primary oncogenic drivers and secondary acquired resistance to EGFR tyrosine kinase inhibitors in patients with non-small-cell lung cancer	Chunyue Wang Zhenlong Zhang Yulan Sun Song Wang Mengmeng Wu Qiuxiang Ou Yang Xu Zhiming Chen Yang Shao Hong Liu Peifeng Hou	CONCLUSIONS: In conclusion, we depicted the mutational profiles of NSCLC patients who harbor RET fusions at baseline or after resistance to EGFR-TKIs. Furthermore, our results suggest that RET fusions mediate secondary resistance to third-generation EGFR-TKIs and might be associated with poor prognosis in patients with NSCLC.	pmid:36059009 doi:10.1186/s12967-022-03593-3	Sun, 04 Sep 2022 06:00:00 -0400
10	pubmed:36059139	The human Glucocorticoid Receptor beta: From Molecular Mechanisms to Clinical Implications	Nicolas C Nicolaides	Glucocorticoids play a fundamental role in a plethora of cellular processes and physiologic functions through binding on a ubiquitously expressed receptor, the glucocorticoid receptor (GR) that functions as a ligand-activated transcription factor influencing the transcription rate of numerous genes in a positive or negative fashion. For many years, we believed that the pleiotropic actions of glucocorticoids were mediated by a single GR protein expressed by the NR3C1 gene. Nowadays, we know that...	pmid:36059139 doi:10.1210/endocr/bqac150	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
11	pubmed:36059279	In-Vitro Evaluation of Novel Polycaprolactone/ Chitosan/ Carbon Nano Tube Scaffold for Tissue Regeneration	Reza Fekrazad Farbod Tondnevis Mohamad Mahdi Abolhasani	CONCLUSION: MWCNT significantly improves the physical and mechanical properties of fabricated scaffolds and in-vitro assessment demonstrated that the prepared nanofibrous scaffold containing 4% MWCNT could be a very useful biocompatible material for tissue engineering.	pmid:36059279 pmc:PMC9395625 doi:10.31661/jbpe.v0i0.1188	Mon, 05 Sep 2022 06:00:00 -0400
12	pubmed:36059471	Genome editing for primary immunodeficiencies: A therapeutic perspective on Wiskott-Aldrich syndrome	Asma Naseem Zohar Steinberg Alessia Cavazza	Primary immunodeficiency diseases (PIDs) are a group of rare inherited disorders affecting the immune system that can be conventionally treated with allogeneic hematopoietic stem cell transplantation and with experimental autologous gene therapy. With both approaches still facing important challenges, gene editing has recently emerged as a potential valuable alternative for the treatment of genetic disorders and within a relatively short period from its initial development, has already entered...	pmid:36059471 pmc:PMC9433875 doi:10.3389/fimmu.2022.966084	Mon, 05 Sep 2022 06:00:00 -0400
13	pubmed:36059510	Cuproptosis status affects treatment options about immunotherapy and targeted therapy for patients with kidney renal clear cell carcinoma	Ganghua Zhang Xinyu Chen Jianing Fang Panpan Tai Aiyan Chen Ke Cao	The development of immunotherapy has changed the treatment landscape of advanced kidney renal clear cell carcinoma (KIRC), offering patients more treatment options. Cuproptosis, a novel cell death mode dependent on copper ions and mitochondrial respiration has not yet been studied in KIRC. We assembled a comprehensive cohort of The Cancer Genome Atlas (TCGA)-KIRC and GSE29609, performed cluster analysis for typing twice using seven cuproptosis-promoting genes (CPGs) as a starting point, and...	pmid:36059510 pmc:PMC9437301 doi:10.3389/fimmu.2022.954440	Mon, 05 Sep 2022 06:00:00 -0400
14	pubmed:36059515	Methamphetamine induces transcriptional changes in cultured HIV-infected mature monocytes that may contribute to HIV neuropathogenesis	Vanessa Chilunda Jessica Weiselberg Samuel Martinez-Meza Lwidiko E Mhamilawa Laura Cheney Joan W Berman	HIV-associated neurocognitive impairment (HIV-NCI) persists in 15-40% of people with HIV (PWH) despite effective antiretroviral therapy. HIV-NCI significantly impacts quality of life, and there is currently no effective treatment for it. The development of HIV-NCI is complex and is mediated, in part, by the entry of HIV-infected mature monocytes into the central nervous system (CNS). Once in the CNS, these cells release inflammatory mediators that lead to neuroinflammation, and subsequent...	pmid:36059515 pmc:PMC9433802 doi:10.3389/fimmu.2022.952183	Mon, 05 Sep 2022 06:00:00 -0400
15	pubmed:36059533	Pooled human bone marrow-derived mesenchymal stromal cells with defined trophic factors cargo promote dermal wound healing in diabetic rats by improved vascularization and dynamic recruitment of M2-like macrophages	Hélène Willer Gabriele Spohn Kimberly Morgenroth Corinna Thielemann Susanne Elvers-Hornung Peter Bugert Bruno Delorme Melanie Giesen Thomas Schmitz-Rixen Erhard Seifried Christiane Pfarrer Richard Schäfer Karen Bieback	Human Mesenchymal Stromal Cells (hMSCs) are a promising source for cell-based therapies. Yet, transition to phase III and IV clinical trials is remarkably slow. To mitigate donor variabilities and to obtain robust and valid clinical data, we aimed first to develop a manufacturing concept balancing large-scale production of pooled hMSCs in a minimal expansion period, and second to test them for key manufacture and efficacy indicators in the clinically highly relevant indication wound healing. Our...	pmid:36059533 pmc:PMC9437960 doi:10.3389/fimmu.2022.976511	Mon, 05 Sep 2022 06:00:00 -0400

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16	pubmed:36059537	Cross-sectional analysis of the humoral response after SARS-CoV-2 vaccination in Sardinian multiple sclerosis patients, a follow-up study	Maria Laura Idda Maristella Pitzalis Valeria Lodde Annalisa Loizedda Jessica Frau Monia Lobina Magdalena Zoledziewska Francesca Virdis Giuseppe Delogu Maria Giuseppina Marini Maura Mingoia Marco Masala Lorena Lorefice Marzia Fronza Daniele Carmagnini Elisa Carta Silvy Pilotto Paolo Castiglia Paola Chessa Sergio Uzzau Gabriele Farina Paolo Solla Maristella Steri Marcella Devoto Edoardo Fiorillo Matteo Floris Roberto Ignazio Zarbo Eleonora Cocco Francesco Cucca	Monitoring immune responses to SARS-CoV-2 vaccination and its clinical efficacy over time in Multiple Sclerosis (MS) patients treated with disease-modifying therapies (DMTs) help to establish the optimal strategies to ensure adequate COVID-19 protection without compromising disease control offered by DMTs. Following our previous observations on the humoral response one month after two doses of BNT162b2 vaccine (T1) in MS patients differently treated, here we present a cross-sectional and...	pmid:36059537 pmc:PMC9433902 doi:10.3389/fimmu.2022.946356	Mon, 05 Sep 2022 06:00:00 -0400
17	pubmed:36059617	Publication trends of research on conjunctival melanoma during 1997-2022: A 25-year bibliometric study	Wei Xu Ludi Yang Shengfang Ge Shichong Jia Fen Gu	CONCLUSION: In the past 25 years, the United States, Germany, England and the Netherlands held the leading position in the CM research. A group of scholars made important contributions to CM research and will continue to guide cutting-edge research. Treatments that have been shown to be effective for advanced cutaneous melanoma, such as targeted therapy and immunotherapy, are potential focuses for future CM research.	pmid:36059617 pmc:PMC9433576 doi:10.3389/fonc.2022.960494	Mon, 05 Sep 2022 06:00:00 -0400
18	pubmed:36059631	What predicts the clinical benefits of PARP inhibitors in platinum-sensitive recurrent ovarian cancer: A real-world single-center retrospective cohort study from China	Depu Zhang Shuo Li Xinxin Zhang Jingwei Peng Shiqian Zhang	CONCLUSION: Maintenance treatment with olaparib and niraparib is effective and well tolerated for PSROC patients in real-world clinical practice. Three clinical factors were identified that predicted prolonged survival under maintenance therapy with PARP inhibitors: BRCA mutant type, PFI 12 months, and CR to last platinum-based therapy. These findings should be further confirmed with an appropriately powered analysis in studies with larger sample sizes.	pmid:36059631 pmc:PMC9433773 doi:10.3389/fonc.2022.955124	Mon, 05 Sep 2022 06:00:00 -0400
19	pubmed:36059640	Case report: B7-H3 CAR-T therapy partially controls tumor growth in a basal cell carcinoma patient	Gang Hu Guangchao Li Wei Wen Wen Ding Zhao Zhou Yongwei Zheng Taoyuan Huang Junnan Ren Rongyi Chen Dingheng Zhu Renliang He Yunsheng Liang Min Luo	B7-H3 is over-expressed in multiple types of solid tumors, making it an ideal target for chimeric antigen receptor (CAR)-T therapy. Here, we first report a case of multiple basal cell carcinoma (BCC) patient treated with humanized monoclonal anti-B7-H3 CAR-T cells through direct intratumoral injection. After three dose-escalated injections, the lesion in the abdomen decreased by 40% in volume, shrank from bulging to flat, but was not eradicated completely. The large lesion in the forehead became...	pmid:36059640 pmc:PMC9428555 doi:10.3389/fonc.2022.956593	Mon, 05 Sep 2022 06:00:00 -0400

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20	pubmed:36059661	Evolutions in the management of non-small cell lung cancer: A bibliometric study from the 100 most impactful articles in the field	Siyuan Chen Yu Qiao Juan Chen Yanan Li Jianlian Xie Pengfei Cui Ziwei Huang Di Huang Yiming Gao Yi Hu Zhefeng Liu	CONCLUSIONS: The United States as a nation and the Memorial Sloan Kettering Cancer Center as an institute contributed the most to this field. The New England Journal of Medicine is the most eye-catching journal. Hotspots of NSCLC management have almost undergone an evolution from chemotherapy and radiotherapy to targeted therapy to immunotherapy. Molecular/biological/genetic fields become the main research base for NSCLC treatment. Immunotherapy and combination therapy are research frontiers.	pmid:36059661 pmc:PMC9428518 doi:10.3389/fonc.2022.939838	Mon, 05 Sep 2022 06:00:00 -0400
21	pubmed:36059672	Evaluation of aliphatic acid metabolism in bladder cancer with the goal of guiding therapeutic treatment	Tianbao Song Kaixiang He Jinzhuo Ning Wei Li Tao Xu Weimin Yu Ting Rao Fan Cheng	Urothelial bladder cancer (BLCA) is a common internal malignancy with a poor prognosis. The re-programming of lipid metabolism is necessary for cancer cell growth, proliferation, angiogenesis and invasion. However, the role of aliphatic acid metabolism genes in bladder cancer patients has not been explored. The samples' gene expression and clinicopathological data were obtained from the Cancer Genome Atlas (TCGA) and the Gene Expression Omnibus (GEO). Univariate, multivariate, and LASSO Cox...	pmid:36059672 pmc:PMC9433665 doi:10.3389/fonc.2022.930038	Mon, 05 Sep 2022 06:00:00 -0400
22	pubmed:36059707	Metabolic management of microenvironment acidity in glioblastoma	Thomas N Seyfried Gabriel Arismendi-Morillo Giulio Zuccoli Derek C Lee Tomas Duraj Ahmed M Elsakka Joseph C Maroon Purna Mukherjee Linh Ta Laura Shelton Dominic D'Agostino Michael Kiebish Christos Chinopoulos	Glioblastoma (GBM), similar to most cancers, is dependent on fermentation metabolism for the synthesis of biomass and energy (ATP) regardless of the cellular or genetic heterogeneity seen within the tumor. The transition from respiration to fermentation arises from the documented defects in the number, the structure, and the function of mitochondria and mitochondrial-associated membranes in GBM tissue. Glucose and glutamine are the major fermentable fuels that drive GBM growth. The major waste...	pmid:36059707 pmc:PMC9428719 doi:10.3389/fonc.2022.968351	Mon, 05 Sep 2022 06:00:00 -0400
23	pubmed:36059804	Expression of Mucin Family Proteins in Non-Small-Cell Lung Cancer and its Role in Evaluation of Prognosis	Jing Tu Min Tang Guoqing Li Liang Chen Yubo Wang Yong Huang	Lung cancer is still the major contributor to cancer-related mortality. Over 85% of patients suffer from non-small-cell lung cancer (NSCLC). Mucins (MUCs) are large glycoproteins secreted or membrane-bound produced by epithelial cells in normal and malignant tissues. They are the major components of the mucous gel that covers the surface of the respiratory epithelium. Certain MUCs have been used or proposed to act as biomarkers for lung cancer. Nevertheless, the expression, messenger ribonucleic...	pmid:36059804 pmc:PMC9439898 doi:10.1155/2022/4181658	Mon, 05 Sep 2022 06:00:00 -0400
24	pubmed:36059808	The Pyroptosis-Related Risk Genes APOBEC3D, TNFRSF14, and RAC2 Were Used to Evaluate Prognosis and as Tumor Suppressor Genes in Breast Cancer	Qian Chen He Jun ChengGuang Yang Feng Yang YingJie Xu	CONCLUSIONS: Based on pyroptosis-related genes (APOBEC3D, TNFRSF14, and RAC2), we built a novel prognostic molecular model for BC that might be used to assess prognostic risk and immune infiltration in BC patients. These signature genes are also tumor suppressor genes and may serve as potential targets for BC.	pmid:36059808 pmc:PMC9436599 doi:10.1155/2022/3625790	Mon, 05 Sep 2022 06:00:00 -0400

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25	pubmed:36059811	Systematic Analysis of Molecular Subtypes and Immune Prediction Based on CD8 T Cell Pattern Genes Based on Head and Neck Cancer	Li Yanwei Feng He Shuang Liu Zhanyu Pan	CD8^(+) T lymphocytes, also known as cytotoxic T lymphocytes, are the most powerful antitumour cells in the human body. Patients with head and neck squamous cell carcinoma (HNSCC) in whom CD8^(+) T lymphocyte infiltration is high have a better prognosis. However, the clinical significance and prognostic significance of CD8^(+) T cell-related regulatory genes in HNSCC remain unclear, and further research is required. In total, 446 CD8^(+) T cell-related genes were obtained using WGCNA. It was...	pmid:36059811 pmc:PMC9436594 doi:10.1155/2022/1500493	Mon, 05 Sep 2022 06:00:00 -0400
26	pubmed:36059964	Drug-loaded PEG-PLGA nanoparticles for cancer treatment	Dan Zhang Lin Liu Jian Wang Hong Zhang Zhuo Zhang Gang Xing Xuan Wang Minghua Liu	Nanoparticles based on single-component synthetic polymers, such as poly (lactic acid-co-glycolic acid) (PLGA), have been extensively studied for antitumor drug delivery and adjuvant therapy due to their ability to encapsulate and release drugs, as well as passively target tumors. Amphiphilic block co-polymers, such as polyethylene glycol (PEG)-PLGA, have also been used to prepare multifunctional nanodrug delivery systems with prolonged circulation time and greater bioavailability that can...	pmid:36059964 pmc:PMC9437283 doi:10.3389/fphar.2022.990505	Mon, 05 Sep 2022 06:00:00 -0400
27	pubmed:36059970	Pharmacological suppression of Nedd4-2 rescues the reduction of Kv11.1 channels in pathological cardiac hypertrophy	Hua Zhang Tian Fu Jinglei Sun Sihao Zou Suhua Qiu Jiali Zhang Shi Su Chenxia Shi De-Pei Li Yanfang Xu	The human ether-á-go-go-related gene (hERG) encodes the pore-forming subunit (Kv11.1), conducting a rapidly delayed rectifier K^(+) current (I (Kr)). Reduction of I (Kr) in pathological cardiac hypertrophy (pCH) contributes to increased susceptibility to arrhythmias. However, practical approaches to prevent I (Kr) deficiency are lacking. Our study investigated the involvement of ubiquitin ligase Nedd4-2-dependent ubiquitination in I (Kr) reduction and sought an intervening approach in pCH....	pmid:36059970 pmc:PMC9428276 doi:10.3389/fphar.2022.942769	Mon, 05 Sep 2022 06:00:00 -0400
28	pubmed:36059985	Qu-Du-San-Jie decoction induces growth inhibition and vascular normalization in NF2-associated vestibular schwannoma	Jie Lin Shi-Wei Li Jing Zhang Fu-Hao Chu Cheng-Ze Li Zhi-Xu Bie Han-Lu Tang Shan Gao Ping Li Meng-Ting Liao Tian-Xi Xin Fu Zhao Pi-Nan Liu Xia Ding	Background: Neurofibromatosis type 2 (NF2) is a rare genetic syndrome that predisposes individuals to develop bilateral vestibular schwannomas (VSs) causing a high risk of life-threatening neurological complications. Traditional treatment options for NF2-associated VS usually cause neurological damage, and to date, there are no FDA-approved pharmacotherapies for NF2. The aim of this study was to evaluate the antitumor efficacy of Qu-Du-San-Jie (QDSJ) decoction, a traditional Chinese medicine...	pmid:36059985 pmc:PMC9437245 doi:10.3389/fphar.2022.941854	Mon, 05 Sep 2022 06:00:00 -0400
29	pubmed:36060001	Editorial: Nanomedicine in Infectious Diseases: Drug Delivery and Vaccines	Srujan Marepally Tejram Sahu Rajeev K Tyagi	No abstract	pmid:36060001 pmc:PMC9431548 doi:10.3389/fphar.2022.928572	Mon, 05 Sep 2022 06:00:00 -0400

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30	pubmed:36060009	A ubiquitin-related gene signature for predicting prognosis and constructing molecular subtypes in osteosarcoma	Nan Wei Gong Chao-Yang Zhou Wen-Ming Lei Ze-Yuan Shi Yong-Qiang Zhang Shun-Bai Zhang Kai Ma Yan-Chao Zhang Hai-Hong	Background: Ubiquitination is medicated by three classes of enzymes and has been proven to involve in multiple cancer biological processes. Moreover, dysregulation of ubiquitination has received a growing body of attention in osteosarcoma (OS) tumorigenesis and treatment. Therefore, our study aimed to identify a ubiquitin-related gene signature for predicting prognosis and immune landscape and constructing OS molecular subtypes. Methods: Therapeutically Applicable Research to Generate Effective...	pmid:36060009 pmc:PMC9428517 doi:10.3389/fphar.2022.904448	Mon, 05 Sep 2022 06:00:00 -0400
31	pubmed:36060148	Preventive Electroacupuncture Alleviates Oxidative Stress and Inflammation via Keap1/Nrf2/HO-1 Pathway in Rats with Cyclophosphamide-Induced Premature Ovarian Insufficiency	Yang Chen Rui Zhao Xiang Li Yun-Peng Luan Li-Wei Xing Xiao-Juan Zhang Jing Wang Xiao-Yan Xia Rong Zhao	Electroacupuncture (EA) is a popular therapeutic therapy for premature ovarian insufficiency (POI). However, little has been known about the underlying processes of EA therapy. To investigate the benefit of EA and reveal the mechanism, thirty SD female rats were allocated into the control, model, sham, EA, and GnRHa groups at random. Vaginal smears were used to monitor the rats' estrous cycle. Serum liver and renal function (ALT, AST, BUN, and Cr), sex hormone (FSH, E2, and AMH), oxidative...	pmid:36060148 pmc:PMC9436575 doi:10.1155/2022/6718592	Mon, 05 Sep 2022 06:00:00 -0400
32	pubmed:36060149	Long Intergenic Nonprotein Coding RNA 00174 Aggravates Lung Squamous Cell Carcinoma Progression via MicroRNA-185-5p/Nuclear Factor IX axis	Peipei Gu Lin Lin	Extensive studies have presented that long noncoding RNAs (lncRNAs) are closely implicated in the pathogenesis of various human malignancies, including lung squamous cell carcinoma (LUSC). This study explored the biological role and the underlying mechanism of long intergenic nonprotein coding RNA 00174 (LINC00174) in LUSC. LINC00174 expression was measured by reverse transcription quantitative real-time polymerase chain reaction (RT-qPCR). Both in vitro and in vivo experiments were conducted to...	pmid:36060149 pmc:PMC9436563 doi:10.1155/2022/9490827	Mon, 05 Sep 2022 06:00:00 -0400
33	pubmed:36060249	Immunotherapy in triple-negative breast cancer: Insights into tumor immune landscape and therapeutic opportunities	Rita Ribeiro Maria João Carvalho João Goncalves João Nuno Moreira	Triple-negative breast cancer (TNBC) is a clinically aggressive subtype of breast cancer that represents 15-20% of breast tumors and is more prevalent in young pre-menopausal women. It is the subtype of breast cancers with the highest metastatic potential and recurrence at the first 5 years after diagnosis. In addition, mortality increases when a complete pathological response is not achieved. As TNBC cells lack estrogen, progesterone, and HER2 receptors, patients do not respond well to hormone...	pmid:36060249 pmc:PMC9437219 doi:10.3389/fmolb.2022.903065	Mon, 05 Sep 2022 06:00:00 -0400
34	pubmed:36060663	Integrative Analyses of Biomarkers Associated with Endoplasmic Reticulum Stress in Ischemic Stroke	Xiaoting Zhang Xi Li Jinyan Gu Jingpei Guo Jiayao Chen Ke Zhang Junfeng Liu Jiani Liu Chao Peng Hanwei Liu Bin Zhou	CONCLUSIONS: By integrating and analyzing the two gene expression data profiles, it can be inferred that ERS may be involved in the development of neuronal apoptosis following IS via immune homeostasis. The identified hub genes, which are associated with immune cell infiltration, may serve as potential biomarkers for relative diagnosis and therapy.	pmid:36060663 pmc:PMC9436554 doi:10.1155/2022/4212180	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
35	pubmed:36060743	Genetic network analysis of human immunodeficiency virus sexual transmission in rural Southwest China after the expansion of antiretroviral therapy: A population-based study	Jin Chen Huanhuan Chen Jianjun Li Liuhong Luo Ruihua Kang Shujia Liang Qiuying Zhu Huaxiang Lu Jinhui Zhu Zhiyong Shen Yi Feng Lingjie Liao Hui Xing Yiming Shao Yuhua Ruan Guanghua Lan	CONCLUSION: This study reveals the role of ART in reducing HIV transmission, and those older male farmers with less than secondary schooling are at high risk of HIV infection at a population level. Improvements to ART efficacy for patients with HIV and precision intervention on high-risk individuals during the expansion of ART are urgently required.	pmid:36060743 pmc:PMC9434148 doi:10.3389/fmicb.2022.962477	Mon, 05 Sep 2022 06:00:00 -0400
36	pubmed:36060802	An m5C methylation regulator-associated signature predicts prognosis and therapy response in pancreatic cancer	Duo Yun Zhirong Yang Shuman Zhang Hai Yang Dongxue Liu Robert Grützmann Christian Pilarsky Nathalie Britzen-Laurent	Pancreatic ductal adenocarcinoma (PDAC) is the most aggressive digestive malignancy due to frequent late-stage diagnosis, rapid progression and resistance to therapy. With increasing PDAC incidence worldwide, there is an urgent need for new prognostic biomarkers and therapy targets. Recently, RNA methylation has emerged as a new tumorigenic mechanism in different cancers. 5-methylcytosine (m5C) is one of the most frequent RNA modifications and occurs on a variety of RNA species including mRNA,...	pmid:36060802 pmc:PMC9437259 doi:10.3389/fcell.2022.975684	Mon, 05 Sep 2022 06:00:00 -0400
37	pubmed:36060808	Editorial: Regulation of Adult Stem Cells Fate and Function in Natural and Artificial Microenvironments	Pavel I Makarevich Yu-Chen Hu	No abstract	pmid:36060808 pmc:PMC9431017 doi:10.3389/fcell.2022.955568	Mon, 05 Sep 2022 06:00:00 -0400
38	pubmed:36060964	Inside the Noonan "universe": Literature review on growth, GH/IGF axis and rhGH treatment: Facts and concerns	Stefano Stagi Vittorio Ferrari Marta Ferrari Manuela Priolo Marco Tartaglia	Noonan syndrome (NS) is a disorder characterized by a typical facial gestalt, congenital heart defects, variable cognitive deficits, skeletal defects, and short stature. NS is caused by germline pathogenic variants in genes coding proteins with a role in the RAS/mitogen-activated protein kinase signaling pathway, and it is typically associated with substantial genetic and clinical complexity and variability. Short stature is a cardinal feature in NS, with evidence indicating that growth hormone...	pmid:36060964 pmc:PMC9434367 doi:10.3389/fendo.2022.951331	Mon, 05 Sep 2022 06:00:00 -0400
39	pubmed:36060973	Vibration therapy as an effective approach to improve bone healing in diabetic rats	Maysa S Campos José B Volpon João Paulo B Ximenez Ana Paula Franttini Christopher E Dalloul Manoel D Sousa-Neto Raquel A Silva Melissa A Kacena Ariane Zamarioli	CONCLUSIONS: Diabetes had detrimental effects on bone healing. Vibration therapy was effective at counteracting the significant disruption in bone repair induced by diabetes, but did not improve fracture healing in non-diabetic control rats. The mechanical stimulus not only improved bone callus quality and quantity, but also partially restored the serum levels of IGF-1 and RANK-L, inducing bone formation and mineralization, thus creating conditions for adequate fracture repair in diabetic rats.	pmid:36060973 pmc:PMC9437439 doi:10.3389/fendo.2022.909317	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
40	pubmed:36061149	Human Brain Organoid: A Versatile Tool for Modeling Neurodegeneration Diseases and for Drug Screening	Cuili Ma Hwanwook Seong Xiaowei Li Xiao Yu Shunliang Xu Yujing Li	Clinical trials serve as the fundamental prerequisite for clinical therapy of human disease, which is primarily based on biomedical studies in animal models. Undoubtedly, animal models have made a significant contribution to gaining insight into the developmental and pathophysiological understanding of human diseases. However, none of the existing animal models could efficiently simulate the development of human organs and systems due to a lack of spatial information; the discrepancy in genetic,...	pmid:36061149 pmc:PMC9436613 doi:10.1155/2022/2150680	Mon, 05 Sep 2022 06:00:00 -0400
41	pubmed:36061306	Comprehensive Analysis of N6-Methyladenosine RNA Methylation Regulators in the Diagnosis and Subtype Classification of Acute Myocardial Infarction	Xianpei Wang Ying Wu Ruoyao Guo Linwei Zhao Juanjuan Yan Chuanyu Gao	Acute myocardial infarction (AMI) is still a huge danger to human health. Sensitive markers are necessary for the prediction of the risk of AMI and would be beneficial for managing the incidence rate. N6-methyladenosine (m6A) RNA methylation regulators have been confirmed to be involved in the development of various diseases. However, their function in AMI has not been fully elucidated. The purpose of this study was to determine the expression of m6A RNA methylation regulators in AMI as well as...	pmid:36061306 pmc:PMC9433256 doi:10.1155/2022/5173761	Mon, 05 Sep 2022 06:00:00 -0400
42	pubmed:36061388	Case report: Altered pre-mRNA splicing caused by intronic variant c.1499 + 1G > A in the *SLC4A4* gene	Yan Liu Wenchao Sheng Jinying Wu Jie Zheng Xiufang Zhi Shuyue Zhang Chunyu Gu Detong Guo Wenhong Wang	Proximal renal tubular acidosis (pRTA) with ocular abnormalities is an autosomal recessive disease caused by variants in the Solute Carrier Family 4 Member 4 (SLC4A4) gene. Patients present with metabolic acidosis and low plasma bicarbonate concentration (317 mmol/L). In addition, they are often accompanied by ocular abnormalities, intellectual disability, and growth retardation. The patient underwent whole exome sequencing (WES) and bioinformatics analysis of variant pathogenicity in this...	pmid:36061388 pmc:PMC9428394 doi:10.3389/fped.2022.890147	Mon, 05 Sep 2022 06:00:00 -0400
43	pubmed:36061485	The Association Between Forkhead Box Class O3A Gene Polymorphism and Psoriasis and Its Relationship with Psoriasis Severity	Ahmed Ibrahim Abd Elneam Ghadah Alhetheli Mohammed Saleh Al-Dhubaibi Ali Ismaeil Ali Abd Alrheam Ahmed El-Sayed Hassan	CONCLUSION: The study indicates that rs13217795 polymorphism of the FOXO3a gene is strongly associated with susceptibility to psoriasis. Also, the serum level of FOXO3a is significantly higher in patients with severe psoriasis, compared to patients with mild-to-moderate psoriasis. This finding could be an area of future targeted therapy.	pmid:36061485 pmc:PMC9436227	Mon, 05 Sep 2022 06:00:00 -0400
44	pubmed:36061546	AAV-mediated gene therapy: Advancing cardiovascular disease treatment	Huili Zhang Qi Zhan Biao Huang Yigang Wang Xiaoyan Wang	Gene therapy has revolutionized the field of medicine, offering new hope for those with common and rare diseases. For nearly three decades, adeno-associated virus (AAV) has shown significant therapeutic benefits in multiple clinical trials, mainly due to its unique replication defects and non-pathogenicity in humans. In the field of cardiovascular disease (CVD), compared with non-viral vectors, lentiviruses, poxviruses, and adenovirus vectors, AAV possesses several advantages, including high...	pmid:36061546 pmc:PMC9437345 doi:10.3389/fcvm.2022.952755	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
45	pubmed:36061560	Adeno-associated virus 9 vector-mediated cardiac-selective expression of human secretory leukocyte protease inhibitor attenuates myocardial ischemia/reperfusion injury	Podsawee Mongkolpathumrat Nitirut Nernpermpisooth Anusak Kijtawornrat Faprathan Pikwong Wannapat Chouyratchakarn Rungrueang Yodsheewan Sasimanas Unajak Sarawut Kumphune	Protease enzymes contribute to the initiation of cardiac remodeling and heart failure after myocardial ischemic/reperfusion (I/R) injury. Protease inhibitors attenuate protease activity and limit left ventricular dysfunction and remodeling. Previous studies showed the cardioprotective effect of secretory leukocyte protease inhibitor (SLPI) against I/R injury. However, overexpression of SLPI gene in cardiovascular diseases has only been investigated in an in vitro experiment. Here,...	pmid:36061560 pmc:PMC9437585 doi:10.3389/fcvm.2022.976083	Mon, 05 Sep 2022 06:00:00 -0400
46	pubmed:36061567	Clinical significance of genetic variation in hypertrophic cardiomyopathy: comparison of computational tools to prioritize missense variants	Pedro Barbosa Marta Ribeiro Maria Carmo-Fonseca Alcides Fonseca	Hypertrophic cardiomyopathy (HCM) is a common heart disease associated with sudden cardiac death. Early diagnosis is critical to identify patients who may benefit from implantable cardioverter defibrillator therapy. Although genetic testing is an integral part of the clinical evaluation and management of patients with HCM and their families, in many cases the genetic analysis fails to identify a disease-causing mutation. This is in part due to difficulties in classifying newly detected rare...	pmid:36061567 pmc:PMC9433717 doi:10.3389/fcvm.2022.975478	Mon, 05 Sep 2022 06:00:00 -0400
47	pubmed:36061650	Computational Biology of BRCA2 in Male Breast Cancer, through Prediction of Probable nsSNPs, and Hit Identification	Sangita Dattatray Shinde Dinesh Parshuram Satpute Santosh Kumar Behera Dinesh Kumar	Male breast cancer (MBC) is a relatively rare disease, but emerging data recommend the development of novel therapeutics considering its alarming threats. Compared to female breast cancer (FBC), MBC is reportedly associated with inferior outcomes (poor survival) owing to their late diagnosis and lack of adequate treatment. Treatment typically correlates with FBC, involving surgical removal of the breast tissue along with chemo/hormonal/radiation therapy, the tamoxifen being a standard adjuvant....	pmid:36061650 pmc:PMC9434626 doi:10.1021/acsomega.2c03851	Mon, 05 Sep 2022 06:00:00 -0400
48	pubmed:36061829	TMEM92 acts as an immune-resistance and prognostic marker in pancreatic cancer from the perspective of predictive, preventive, and personalized medicine	Simeng Zhang Xing Wan Mengzhu Lv Ce Li Qiaoyun Chu Guan Wang	CONCLUSION: The current study explored for the first time the immune-resistance phenotype of pancreatic cancer and identified TMEM92 as an innovative marker in predicting clinical outcomes and immunotherapeutic efficacy. These findings not only help to recognize high-risk and immune-resistance population which could be supplied targeted prevention, but also provide personalized medical services by intervening TMEM92 function to improve the prognosis of pancreatic cancer. In addition, the...	pmid:36061829 pmc:PMC9437164 doi:10.1007/s13167-022-00287-0	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
49	pubmed:36061955	Lamina Propria Phagocyte Profiling Reveals Targetable Signaling Pathways in Refractory Inflammatory Bowel Disease	Gillian E Jacobsen Irina Fernández Maria A Quintero Ana M Santander Judith Pignac-Kobinger Oriana M Damas Amar R Deshpande David H Kerman Yuguang Ban Zhen Gao Tiago C Silva Lily Wang Ashley H Beecham Jacob L McCauley Juan F Burgueño Maria T Abreu	CONCLUSIONS: Lamina propria phagocytes from IBD mucosa provide pathogenetic clues on the nature of treatment refractoriness and inform new targets for therapy.	pmid:36061955 pmc:PMC9438737 doi:10.1016/j.gastha.2022.01.005	Mon, 05 Sep 2022 06:00:00 -0400
50	pubmed:36062188	Perspectives on the Molecular Mediators of Oxidative Stress and Antioxidant Strategies in the Context of Neuroprotection and Neurolongevity: An Extensive Review	Sheikh Shohag Shomaya Akhter Shahidul Islam Tonmoy Sarker Moinuddin Khan Sifat Md Mominur Rahman Md Rezaul Islam Rohit Sharma	Molecules with at least one unpaired electron in their outermost shell are known as free radicals. Free radical molecules are produced either within our bodies or by external sources such as ozone, cigarette smoking, X-rays, industrial chemicals, and air pollution. Disruption of normal cellular homeostasis by redox signaling may result in cardiovascular, neurodegenerative diseases and cancer. Although ROS (reactive oxygen species) are formed in the GI tract, little is known about how they...	pmid:36062188 pmc:PMC9439934 doi:10.1155/2022/7743705	Mon, 05 Sep 2022 06:00:00 -0400
51	pubmed:36062384	Cell Block-Based RNA Next Generation Sequencing for Detection of Gene Fusions in Lung Adenocarcinoma: An Institutional Experience	Shuanzeng Wei Jacqueline N Talarchek Min Huang Yulan Gong Fang Du Hormoz Ehya Douglas B Flieder Arthur S Patchefsky Mariusz A Wasik Jianming Pei	CONCLUSIONS: Cytology cell blocks can be the main source for lung cancer molecular testing. Detecting gene fusions by RNA-based NGS on cell blocks is convenient and reliable in daily practice.	pmid:36062384 doi:10.1111/cyt.13175	Mon, 05 Sep 2022 06:00:00 -0400
52	pubmed:36062410	Advancements in ocular gene therapy delivery: vectors and subretinal, intravitreal, and suprachoroidal techniques	Kyle D Kovacs Thomas A Ciulla Szilárd Kiss	INTRODUCTION: : Ocular gene therapy represents fertile ground for rapid innovation, with ever-expanding therapeutic strategies, molecular targets, and indications.	pmid:36062410 doi:10.1080/14712598.2022.2121646	Mon, 05 Sep 2022 06:00:00 -0400
53	pubmed:36062504	Detection of clinically-relevant EGFR variations in de novo small cell lung carcinoma by droplet digital PCR	Rajesh Venkataram Vijith Shetty Kishan Prasad Sonam Kille Teerthanath Srinivas Anirban Chakraborty	Targeted therapy that utilizes tyrosine kinase inhibitors (TKIs), specific to epidermal growth factor receptors (EGFR) has changed the landscape of treatment of non-small cell lung cancer (NSCLC). The success or failure of this approach depends on presence of certain variations in the tyrosine kinase domain of EGFR gene. Generally, patients diagnosed with Small cell lung cancer (SCLC) are considered ineligible for TKI therapy owing to the absence of EGFR variations. . However, there is evidence...	pmid:36062504 doi:10.4081/monaldi.2022.2280	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
54	pubmed:36062529	Charge detection mass spectrometry for the analysis of viruses and virus-like particles	Lohra M Miller Martin F Jarrold	Heterogeneity usually restricts conventional mass spectrometry to molecular weights less than around a megadalton. As a single-particle technique, charge detection mass spectrometry (CDMS) overcomes this limitation. In CDMS, the mass-to-charge (m/z) ratio and charge are measured simultaneously for individual ions, giving a direct mass measurement for each ion. Recent applications include the analysis of viruses, virus-like particles, vaccines, heavily glycosylated proteins, and gene therapy...	pmid:36062529 doi:10.1042/EBC20220101	Mon, 05 Sep 2022 06:00:00 -0400
55	pubmed:36062694	Advances in hypertrophic cardiomyopathy: What the cardiologist needs to know	Alexandra Toste	Hypertrophic cardiomyopathy (HCM) is known as the most common genetic heart disease, characterized by otherwise unexplained left ventricular (LV) hypertrophy. In spite of major advances in whole genome sequence techniques, it is still not possible to identify the causal mutation in approximately half of HCM patients. Consequently, a new HCM concept, "beyond the sarcomere" is being developed, supported by data from recent HCM registries which reveal two distinct HCM subgroups: sarcomere positive...	pmid:36062694 doi:10.1016/j.repc.2021.05.015	Mon, 05 Sep 2022 06:00:00 -0400
56	pubmed:36062695	Neurofibromatosis type 1 and pulmonary arterial hypertension: A case report	Marina Raquel Santos Andreia Micaela Pereira	Neurofibromatosis type 1 (NF1) is a common autosomal dominant genetic disorder that affects multiple organ systems and has a wide range of clinical manifestations. Pulmonary hypertension (PH) associated with NF1 (PH-NF1) is rarely seen, but confers a dismal prognosis. In the literature this association has been described in only 31 cases. The authors report the case of a 77-year-old female patient with NF1 complicated by severe precapillary PH despite triple disease-specific oral combination...	pmid:36062695 doi:10.1016/j.repc.2019.05.018	Mon, 05 Sep 2022 06:00:00 -0400
57	pubmed:36062808	Hypertrophic cardiomyopathy: an up-to-date snapshot of the clinical drug development pipeline	Juan Tamargo María Tamargo Ricardo Caballero	INTRODUCTION: Hypertrophic cardiomyopathy (HCM) is a complex cardiac disease with highly variable phenotypic expression and clinical course most often caused by sarcomeric gene mutations resulting in left ventricular hypertrophy, fibrosis, hypercontractility, and diastolic dysfunction. For almost 60 years, HCM has remained an orphan disease and still lacks a disease-specific treatment.	pmid:36062808 doi:10.1080/13543784.2022.2113374	Mon, 05 Sep 2022 06:00:00 -0400
58	pubmed:36063216	Maternal emotional intelligence and negative parenting affect are independently associated with callous-unemotional traits in preschoolers	Rebecca G Brady Meghan Rose Donohue Rebecca Waller Rebecca Tillman Kirsten E Gilbert Diana J Whalen Cynthia E Rogers Deanna M Barch Joan L Luby	Deficits in emotion intelligence (EI) are a key component of early-childhood callous-unemotional (CU) traits. Children's EI may be influenced by their mother's EI through both familial genetic and environmental mechanisms; however, no study has directly tested the role of maternal EI in the development of CU traits. This study investigated whether maternal EI had a direct relationship with children's CU traits when controlling for the potential influence of parenting affect and other psychiatric...	pmid:36063216 doi:10.1007/s00787-022-02074-8	Mon, 05 Sep 2022 06:00:00 -0400

	NCT Number	Title	Authors	Description	Identifier	Dates
59	pubmed:36063264	Real-World Patient Experience of CGRP-Targeting Therapy for Migraine: a Narrative Review	Ann M Murray Jennifer I Stern Carrie E Robertson Chia-Chun Chiang	PURPOSE OF REVIEW: To summarize available calcitonin gene-related peptide (CGRP)-targeting therapies for migraine and discuss their use in real-world populations.	pmid:36063264 doi:10.1007/s11916-022-01077-z	Mon, 05 Sep 2022 06:00:00 -0400
60	pubmed:36063327	CRISPR/Cas9 On- and Off-Target Activity Using Correlative Force and Fluorescence Single-Molecule Microscopy	Matthew D Newton Benjamin J Taylor Maria Emanuela Cuomo David S Rueda	The discovery of CRISPR/Cas9 as an easily programmable endonuclease heralds a new era of genetic manipulation. With this comes the prospect of novel gene therapy approaches, and the potential to cure previously untreatable genetic diseases. However, reports of spurious off-target editing by CRISPR/Cas9 pose a significant hurdle to realizing this potential. A deeper understanding of the factors that affect Cas9 specificity is vital for development of safe and efficient therapeutics. Here, we...	pmid:36063327 doi:10.1007/978-1-0716-2229-2_13	Mon, 05 Sep 2022 06:00:00 -0400
61	pubmed:36063486	PDE4 inhibitor eliminates breast cancer stem cells via noncanonical activation of mTOR	Pritha Mukherjee Arka Bagchi Ananya Banerjee Himansu Roy Arijit Bhattacharya Arunima Biswas Urmi Chatterji	Ineffective cancer treatment is implicated in metastasis, recurrence, resistance to chemotherapy and radiotherapy, and evasion of immune surveillance. All these failures occur due to the persistence of cancer stem cells (CSCs) even after rigorous therapy, thereby rendering them as essential targets for cancer management. Contrary to the quiescent nature of CSCs, a gene profiler array disclosed that phosphatidylinositol-3-kinase (PI3K), which is known to be crucial for cell proliferation,...	pmid:36063486 doi:10.1002/jcb.30325	Mon, 05 Sep 2022 06:00:00 -0400
62	pubmed:36063561	A novel pathway mutation perturbation score predicts the clinical outcomes of immunotherapy	Xiangmei Li Yalan He Jiashuo Wu Jiayue Qiu Ji Li Qian Wang Ying Jiang Junwei Han	The link between tumor genetic variations and immunotherapy benefits has been widely recognized. Recent studies suggested that the key biological pathways activated by accumulated genetic mutations may act as an effective biomarker for predicting the efficacy of immune checkpoint inhibitor (ICI) therapy. Here, we developed a novel individual Pathway Mutation Perturbation (iPMP) method that measures the pathway mutation perturbation level by combining evidence of the cumulative effect of mutated...	pmid:36063561 doi:10.1093/bib/bbac360	Mon, 05 Sep 2022 06:00:00 -0400