

CANCER PREVENTION RESEARCH

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1 The First Lady Presses for Cancer Screening to Get Back On Track

Lisa A. DuBois and Raymond N. DuBois

RESEARCH BRIEFS

3 Targeting the Pro-survival Protein BCL-2 to Prevent Breast Cancer

Adelaide Young, Wen Bu, Weiyu Jiang, Amy Ku, Jyoti Kapali, Sagar Dhamne, Lan Qin, Susan G. Hilsenbeck, Yi-Chieh Nancy Du, and Yi Li

This study demonstrates that prophylactic treatment with the BCL2-specific antagonist venetoclax prevents breast cancer initiated by a mutated and activated PIK3CA, the most common breast oncogene.

11 Intranasal Iloprost Prevents Tumors in a Murine Lung Carcinogenesis Model

Meredith A. Tennis, Alex J. Smith, Lori D. Dwyer-Nield, and Robert L. Keith

Iloprost is a promising chemoprevention agent for lung cancer and this work describes a new delivery approach *in vivo*.

RESEARCH ARTICLES

17 Single-cell RNA Sequencing Reveals How the Aryl Hydrocarbon Receptor Shapes Cellular Differentiation Potency in the Mouse Colon

Yongjian Yang, Daniel Osorio, Laurie A. Davidson, Huajun Han, Destiny A. Mullens, Arul Jayaraman, Stephen Safe, Ivan Ivanov, James J. Cai, and Robert S. Chapkin

Our mouse single-cell RNA sequencing analyses provide new evidence of the molecular function of Ahr in modulating colonic stemness and cell-cell communication *in vivo*. From a cancer prevention perspective, Ahr should be considered a therapeutic target to recalibrate remodeling of the intestinal stem cell niche.

29 Composite Score of Healthy Lifestyle Factors and the Risk of Pancreatic Cancer in a Prospective Cohort Study

Hung N. Luu, Pedram Paragomi, Renwei Wang, Aizhen Jin, Randall E. Brand, Woon-Puay Koh, and Jian-Min Yuan

In this large prospective Asian study, we calculated a composite score of healthy lifestyle factors, including body mass index, cigarette smoking, the Alternative Healthy Eating Index-2010 (AHEI-2010), sleep duration, and physical activity and found this composite score was associated with a significant reduction in pancreatic cancer risk, by as much as 62%. This finding suggests that public health programs emphasizing comprehensive lifestyle modification strategy would be more effective for prevention of pancreatic cancer than the change of a single lifestyle factor.

37 Cost Effectiveness of Lung Cancer Screening With Low-Dose CT in Heavy Smokers in China

Jingmin Yuan, Yan Sun, Ke Wang, Zhiyi Wang, Duo Li, Meng Fan, Xiang Bu, Mingwei Chen, and Hui Ren

LDCT screening is cost effective in heavy smokers in China, and the optimal age to start screening is suggested to be 50 years old.

45 Comparison of Different HPV-based Strategies and Cytology in Routine Cervical Cancer Screening Programme in China: A Population-based Study

Shi Wang, Ling Li, Jie Yang, Na Han, Heling Bao, and Hai-Jun Wang

Both co-testing and primary HPV testing with HPV-16/18 genotyping and reflex cytology triage provided higher sensitivity for detecting CIN3+; however, the number of colposcopy referrals also increased compared with cytology in a routine program. It has great public health implications for the introduction of HPV-based screening strategies in China.

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55 Reduction in Vaccine HPV Type Infections in a Young Women Group (18–25 Years) Five Years after HPV Vaccine Introduction in Colombia

Alba L. Combita, Viviana Reyes, Devi Puerto, Raúl Murillo, Ricardo Sánchez, Marcela Nuñez, Gustavo A. Hernandez-Suarez, and Carolina Wiesner

Monitoring HPV vaccines post-licensure plays an important role in assessing the progress of immunization programs, demonstrating the impact of vaccines on the population, and providing data for policy needs. In Colombia, HPV vaccines showed effectiveness when administered before start of sexual activity, and two doses are sufficient to achieve good protection.

67 Acknowledgment to Reviewers

ABOUT THE COVER

Despite recent recognition of the critical role of aryl hydrocarbon receptor (Ahr)-dependent signaling in colon tumor suppression, its role in regulating colonic crypt stemness and cell-cell communication *in vivo* has not been elucidated. In the study starting on page 17, Yang and colleagues generated a high-quality atlas of colonic intestinal crypts from wild-type (WT) and intestinal-specific Ahr knockout (KO) mice using single-cell transcriptomics and advanced analytical strategies. These single-cell RNA sequencing analyses provide new evidence of the molecular function of Ahr in modulating putative stem cell driver genes, cell potency lineage decisions and cell-cell communication *in vivo*. The cover image shows the projection of WT and Ahr KO mouse colonocytes onto a two-dimensional t-SNE space colored according to their ascribed cell types.

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