IMMUNOLOGY

Maternal IgE activates fetal mast cells

Mast cells (MCs) are immune cells that participate in allergic reactions through their activation by immunoglobulin E (IgE) antibodies. MCs arise early during mammalian development, but it is unclear whether IgE-mediated activation occurs in fetal tissues and what the source of IgE stimulation is. Msallam *et al*. show that human and mouse fetal MCs can be sensitized by IgE of maternal origin, which crosses the placental barrier through the fetal neonatal Fc receptor (see the Perspective by Rothenberg). Prenatal maternal sensitization conferred transient allergen sensitivity after birth and resulted in the development of postnatal skin and airway inflammation in the offspring after their first exposure to allergen. Thus, both maternal IgE and fetal MCs may influence mother-to-child transmission of allergic disease during gestation. —PNK

Science, this issue p. 941; see also p. 907

MATERIALS SCIENCE

Feeling temperature and touch

The range of receptors in our skin make it possible to sense when we are touching an object and also gives us a general sense of the temperature of that object. Achieving this in an artificial skin-like material has been a challenge because most of the approaches for sensing touch are themselves temperature sensitive. You *et al*. studied the ion relaxation dynamics in a conductive elastomeric film (see the Perspective by Liu). They show that the ion relaxation time can be used as a strain-insensitive intrinsic variable for detecting temperature and the capacitance can be used as a temperature-insensitive extrinsic variable for sensing the strain, thus decoupling the two so that their signals do not interfere with each other. —MSL

Science, this issue p. 961; see also p. 910

MATERIALS SCIENCE

A soft touch

Measuring the force it takes for a hand to grasp an object requires sensors to be placed on the fingertips, but these sensors will interfere with or affect how much force ends up being applied. Lee *et al*. developed a nanomesh sensor built from a series of electrospun materials (see the Perspective by Liu). Using a robotic tester, they show that this device can repeatably detect the pressure involved in gripping an object. They also show that the sensors can be attached to human fingers and that this does not affect the force used to grasp an object. —MSL

Science, this issue p. 966; see also p. 910

SURFACE SCIENCE

Telegraphing molecules

Scanning tunneling microscope (STM) tips have long been used to manipulate atoms and molecules through direct interactions. Civita *et al*. now show that at cryogenic temperatures, the bias voltage from an STM tip can propel a large organic molecule, dibromoterfluorene, long distances—tens of nanometers along straight tracks on the flat silver (111) surface (see the Perspective by Esch and Lechner). This electrostatic effect requires the molecule to be oriented along the track, and derivatives lacking bromide groups would change direction. In a dual-tip setup, changing the bias voltage sent and received molecules between two specific points about 60 nanometers apart. —PDS

Science, this issue p. 957; see also p. 912

ANTIFUNGAL DISCOVERY

Prospecting for antifungal molecules

Marine bacteria produce a plethora of natural products that often have unusual chemical structures and corresponding reactivity, which sometimes translate into a valuable biological function. Zhang *et al*. used a metabolomic screen to zero in on microbial strains from the microbiome of a sea squirt that produces a high diversity of chemical structures. They then screened these molecules for inhibition of fungi (see the Perspective by Cowen). A polycyclic molecule dubbed turbinmicin possessed potent antifungal activity against the multidrug-resistant fungal pathogens *Candida auris* and *Aspergillus fumigatus*. Preliminary mechanism-of-action and mouse toxicity studies suggest that this molecule works though a fungus-specific pathway and is well tolerated at therapeutic doses. —MAF

Science, this issue p. 974; see also p. 906

CANCER THERAPY

Unmasking sensitivity to chemotherapy

Although the activity of the epidermal growth factor receptor (EGFR) pathway is increased in triple-negative breast cancers (TNBCs), these tumors are generally insensitive to EGFR inhibitors. Cruz-Gordillo *et al*. found that insensitivity to the EGFR inhibitor erlotinib was due to the prosurvival protein Mcl-1. *MCL1* expression in TNBC cells was promoted by the ELP family of transcription-elongation regulators, particularly ELP4. These findings suggest that combining erlotinib with an Mcl-1 inhibitor might be effective in TNBC patients. —LKF

Sci. Signal. **13**, eabb9820 (2020).

DENDRITIC CELLS

Distinct dendritic cell responses

Dendritic cells (DCs) are critical for activating naïve T cells by presenting antigens and providing costimulation, processes that are enhanced by cytokine signals from the surrounding environment. Girard *et al*. used single-cell proteogenomics and flow cytometry to examine cell type–specific responses of human peripheral blood monocyte and DC subsets to type I interferon. Interferon-β induced maturation of the recently identified $CD1c^+$ $CD5^-$ DC3 subset, which was characterized by distinct expression of the costimulatory molecule GITRL, a tumor necrosis factor family ligand, and driven by nuclear factor κB signaling. These results identify conserved and cell type–specific features of the type I interferon response of human mononuclear phagocyte subsets, including the molecular signals that monocytes and DCs may leverage to instruct T cells. —CO

Sci. Immunol. **5**, eabe0347 (2020).