What is EGFR and the EGFR Mutation?

TRANSCRIPT & FIGURES
EGFR is the epidermal growth factor receptor – this is a protein that’s expressed or found in a variety of tissues in your body. Epidermal refers to epidermis, and was initially described in the skin. It’s also expressed in the colon and a variety of other places. Now, some portion of patients with lung cancer, about 20% of people with lung cancer, have mutations in the epidermal growth factor receptor. Importantly, these mutations occur only in the tumor – we don’t see epidermal growth factor receptor mutations in the skin, for instance, but the mutations are in the tumor, and these mutations drive the cancer. We know that the tumors are what we describe as addicted to the signaling from this abnormal, this mutated, epidermal growth factor receptor protein, and this leads to the cancer growth. Since we have drugs that target the epidermal growth factor receptor, we can treat patients with those drugs, and by depriving the tumor of that EGFR signal, those tumor cells die. Now, the first-generation of epidermal growth factor receptor drugs, EGFR drugs, things like erlotinib, gefitinib, and even the second-generation drugs, afatinib, all target regular EGFR, wild-type EGFR, as it’s sometimes called. Importantly, the next generation of drugs that’s currently under development, rociletinib and mереletinib are drugs that are targeted specifically at mutant forms of EGFR, and so they have a different side effect profile, and it spares some of those normal EGFR effects. The normal EGFR effects can include rash, and diarrhea.
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