Lung cancer continues to be one of the most prevalent and deadly cancers worldwide. However, the past year has brought fresh hope. In 2024, the U.S. FDA approved several innovative drugs specifically targeting different forms of lung cancer. Here's a closer look at these drugs:

1. **Bizengri (zenocutuzumab-zbco)**

   Clinical Trial Id: NCT02912949
   Approved on: April 2024.
   Target: HER2 and HER3 receptors.
   Mechanism: It binds to the extracellular domains of HER2 and HER3. It inhibits HER2:HER3 dimerization and prevents NRG1 from binding to HER3. This inhibition decreases cell proliferation and disrupts signalling through the PI3K-AKT-mTOR pathway.
   KEGG ID: D11991
   DrugBank ID: DB15559

2. **Imdelltra (tarlatamab-dlle)**

   Clinical Trial ID: NCT05060016
   Approved on: May 2024.
   Target: delta-like ligand 3 (DLL3) and CD3
   Mechanism: It is a bispecific monoclonal antibody that targets CD3 expressed on the surface of T-cells and DLL3, an inhibitory ligand that suppresses Notch signalling and is highly expressed across various small-scale lung cancer disease stages and treatment statuses. Its bispecificity causes T-cell activation, the release of inflammatory cytokines, and lysis at DLL3-expressing cells.
   KEGG ID: D12234
   DrugBank ID: DB17256

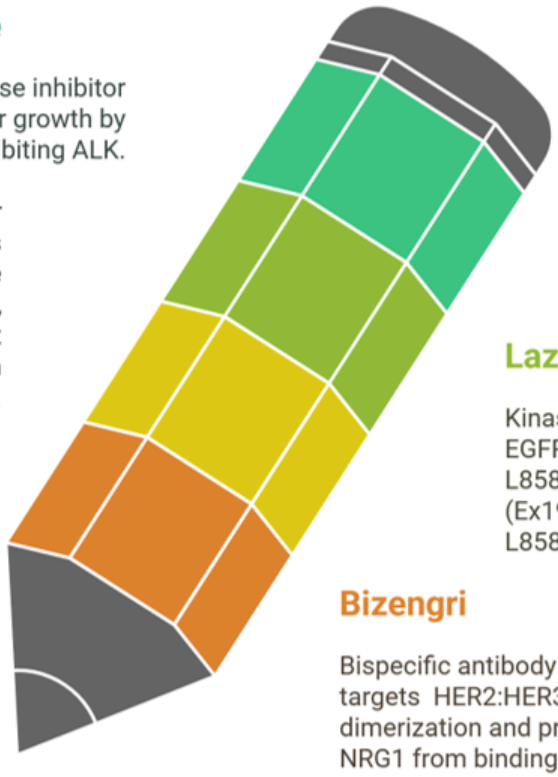
3. Lazcluze (lazertinib):

Clinical Trial Id: NCT04487080
Approved on : August 2024
Target: EGFR mutation.
Mechanism: Lazertinib is a kinase inhibitor that targets EGFR single (Ex19del, L858R, T790M) and double (Ex19del/T790M and L858R/T790M) mutations. It irreversibly inhibits EGFR by forming a covalent bond to the Cys797 residue in the ATP-binding site of the EGFR kinase domain. It inhibits EGFR phosphorylation and downstream signalling pathways, such as AKT and ERK, leading to apoptosis in EGFR-mutant NSCLC cells.
KEGG ID: D11980, D12245
DrugBank ID: DB16216

4. Ensacove (ensartinib)

Clinical trial Id: NCT02767804
Approved on: December 2024
Target: Anaplastic Lymphoma Kinase (ALK)
Mechanism: Ensartinib is a tyrosine kinase inhibitor that selectively inhibits ALK to slow tumour growth. When this receptor is overactive, it causes cells to grow and divide too fast.
KEGG ID: D11346
DrugBank ID: DB14860

FDA approved Lung cancer drugs in 2024



Ensacove

Tyrosine kinase inhibitor slowing tumor growth by inhibiting ALK.

Imdelltra

Bispecific T-cell engager (BiTE) antibody that targets the CD3 expressed on the surface of T-cells and DLL3, an inhibitory ligand that suppresses Notch signaling.

Lazcluze

Kinase inhibitor that targets EGFR single (Ex19del, L858R, T790M) and double (Ex19del/T790M and L858R/T790M) mutations.

Bizengri

Bispecific antibody that targets HER2:HER3 dimerization and prevents NRG1 from binding to HER3.