EGFR inhibitor

Are EGFR Inhibitors the Same as Tyrosine Kinase Inhibitors (TKIs)?

Not exactly. **All EGFR tyrosine kinase inhibitors are EGFR inhibitors**, but **not all EGFR inhibitors are tyrosine kinase inhibitors (TKIs)**.

EGFR Inhibitors

EGFR inhibitors refer to **any drug that blocks the activity of the epidermal growth factor receptor (EGFR)**. There are two main types:

- **Monoclonal Antibodies (mAbs):**
  - Target the **extracellular domain** of EGFR
  - Block ligand binding (e.g., EGF, amphiregulin) and prevent receptor dimerization
  - Examples:
    - **Cetuximab**
    - **Panitumumab**
- **Tyrosine Kinase Inhibitors (TKIs):**
  - Target the **intracellular kinase domain** of EGFR
  - Compete with ATP to block autophosphorylation and downstream signaling
  - Examples:
    - **Erlotinib**
    - **Gefitinib**
    - **Afatinib**
    - **Osimertinib**

Tyrosine Kinase Inhibitors (TKIs)

TKIs are a broader class of drugs that inhibit the kinase activity of **various receptor tyrosine kinases**, not just EGFR. Examples include:

- **EGFR-TKIs:** Erlotinib, Gefitinib
- **VEGFR-TKIs:** Sunitinib, Sorafenib
- **MET-TKIs:** Crizotinib
- **ABL-TKIs:** Imatinib (for BCR-ABL in CML)

Comparison Table

Feature	EGFR Inhibitor	Tyrosine Kinase Inhibitor (TKI)
Target	EGFR	Kinase domains (multiple receptors)

Feature	EGFR Inhibitor	Tyrosine Kinase Inhibitor (TKI)
Includes	mAbs + TKIs	TKIs only
Example (mAb)	Cetuximab	✘
Example (EGFR-TKI)	Erlotinib	✔
Broader category	No	Yes

Summary

- EGFR inhibitors = monoclonal antibodies **and** EGFR-TKIs
- TKIs = small molecules targeting **various** kinase domains, including EGFR