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Report

Ls For tumors with EGFR amplification, which drugs target EGFR in DGIdb and is there clinical evidence supporting sensitivity?

I'll help you find drugs targeting EGFR and clinical evidence for sensitivity in tumors with EGFR amplification. Let me query both DGIdb and CIViC databases.

L get_drug_interactions_for_gene_list

Now let me query CIViC for clinical evidence specifically related to EGFR amplification and sensitivity:

L get_variant_evidence

Let me also check for any CIViC assertions related to EGFR amplification:

L get_variant_assertions

Now I have comprehensive information. Here's a summary of the findings:

EGFR-Targeting Drugs in DGIdb

DGIdb lists **15 FDA-approved drugs** that target EGFR as inhibitors. The top drugs ranked by interaction score include:

Drug	Approval Status	Interaction Type	Score
Afatinib	FDA Approved	Inhibitor (TKI)	1.22
Mobocertinib	FDA Approved	Inhibitor (TKI)	1.09
Necitumumab	FDA Approved	Antibody/Inhibitor	0.68
Cetuximab	FDA Approved	Antibody/Inhibitor	0.62
Dacomitinib	FDA Approved	Inhibitor (TKI)	0.59
Erlotinib	FDA Approved	Inhibitor (TKI)	0.57

Drug	Approval Status	Interaction Type	Score
Neratinib	FDA Approved	Inhibitor (TKI)	0.36
Lapatinib	FDA Approved	Inhibitor (TKI)	0.27
Amivantamab	FDA Approved	Inhibitor	0.27
Osimertinib	FDA Approved	Inhibitor (TKI)	0.27
Panitumumab	FDA Approved	Antibody/Inhibitor	0.18

Source: [DGIdb](#)

Clinical Evidence for EGFR Amplification Sensitivity (CIViC)

Lung Non-Small Cell Carcinoma (NSCLC) — Strong Evidence

Therapy	Evidence	Rating	Source
Erlotinib + Gefitinib	EGFR amplification associated with improved OS and PFS with TKI treatment	B/4	EID:5924 , PMID:20826716
EGFR TKIs (general)	Meta-analysis: EGFR amplification associated with increased OS (HR=0.77), PFS (HR=0.60), and TTP (HR=0.50)	B/4	EID:948 , PMID:20826716
Erlotinib	Phase 3 trial: Significantly increased survival (HR 0.44, p=0.008) and response rate (20% vs 2%) in patients with EGFR amplification/polysomy	B/4	EID:7802 , PMID:16014883

Note: One study ([EID:977](#)) found EGFR amplification was not independently predictive when EGFR mutations were accounted for, suggesting amplification may correlate with activating mutations.

Colorectal Cancer — Supporting Evidence

Therapy	Evidence	Rating	Source
Cetuximab + Panitumumab	Meta-analysis (14 studies): High EGFR gene copy number predicted improved PFS and OS regardless of KRAS status. ORR 65.2% (high GCN) vs 12.2% (low GCN)	B/3	EID:854 , PMID:24653627
Cetuximab	EGFR amplification predicted response and OS independent of KRAS status in metastatic CRC	B/3	EID:911 , PMID:18794099

Gastric Adenocarcinoma — Emerging Evidence

Therapy	Evidence	Rating	Source
Cetuximab + chemotherapy	EGFR copy number ≥ 4.0 significantly associated with better OS (HR 0.2, p=0.022)	B/3	EID:6927 , PMID:22152101

Head and Neck Squamous Cell Carcinoma — Negative Evidence

Therapy	Evidence	Rating	Source
Cetuximab + 5-FU + Platinum	EGFR amplification was NOT predictive of response (EXTREME study)	B/4	EID:691 , PMID:21048039

Summary

For tumors with **EGFR amplification**, the strongest clinical evidence supports sensitivity to:

- 1. EGFR tyrosine kinase inhibitors (Erlotinib, Gefitinib) in NSCLC** — multiple meta-analyses and Phase 3 trial data support improved survival outcomes
- 2. Anti-EGFR antibodies (Cetuximab, Panitumumab) in colorectal cancer** — high gene copy number predicts better response independent of KRAS status
- 3. Cetuximab in gastric adenocarcinoma** — emerging evidence suggests benefit

However, EGFR amplification does **not** predict benefit from cetuximab-based therapy in **head and neck cancer** based on the EXTREME study data.

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