



Optimize biomedical literature searches for better outcomes

Embase is a comprehensive biomedical database with high-quality evidence, so you can discover, innovate and develop with confidence.

For over 50 years, pharmaceutical professionals around the world have relied on Embase for:

- Drug safety monitoring, including pharmacovigilance
- Comprehensive literature reviews and meta-analyses
- Competitive intelligence, support of marketing claims and identification of key opinion leaders
- Risk mitigation and Health Technology Assessments



48M
records



8.5K
journals



500K
clinical trials



5.5M
conference abstracts



178K
preprints

Numbers as of April 2025.



Competent authorities that recommend or reference Embase include the **EMA**, **TGA**, **NMPA**, **Cochrane** and others.



ELSEVIER

Advancing human progress together

Minimize the risk of missing business-critical information with:

Superior content

- Journals from 95 countries, including 99.7% of all MEDLINE titles plus 3,300 more
- Over 13 million records not indexed in MEDLINE
- Indexed records from ClinicalTrials.gov
- Preprints from bioRxiv, medRxiv, and SSRN
- Abstracts from more than 15,000 conferences

Powerful Search

- Embase AI enables easy searching using natural language
- Dedicated search forms, such as PICO, PV Wizard, and many more
- Flexible query syntax with Boolean operators, truncation and PubMed to Embase translation tool
- EMA Medical Literature Monitoring (MLM) searches integrated for 409 drugs
- Result filters, automated alerts and auditable email logs

Drug safety data

- In-depth indexing of drugs, diseases, manufacturer and drug trade names, medical procedures, and many more
- Semantic relations on adverse drug reactions, drug-drug interactions, off-label use, etc.
- Multiple updates per year of indexed terms and synonyms in Emtree thesaurus
- Machine-readable and enriched data available for off-platform applications

Answer your research questions using **Embase**

We prioritize answers based on peer-reviewed sources, ensuring you receive the most credible and validated information available. Responses are AI-generated without human review. Use scientific judgment before applying.

what antiepileptic drug is best transported over the BBB?

Searching for - what antiepileptic drug is best transported over the BBB?

✓ 1. Translating the question into Embase query language

Embase query:
[antiepileptic drug]/exp OR [anticonvulsant agent]/exp OR [antiepileptic drug]/exp AND [blood brain barrier]/exp OR [blood brain barrier]/exp OR [BBB]/exp OR [blood NEAR] [brain NEAR] [barrier]/exp AND [transport]/exp OR [transport]/exp OR [cross]/exp OR [pass]/exp OR [penetrate]/exp NOT [article in press]/exp OR [conference abstract]/exp OR [conference paper]/exp OR [conference review]/exp OR [preprint]/exp OR [clinical trial]/exp

Open in results page Copy query

✓ 2. Synthesizing the answer

Based on the provided context, phenytoin and levetiracetam are transported by mouse P-glycoprotein, but not by human P-glycoprotein, while carbamazepine is not transported by P-glycoprotein in either species.

Transport of Antiepileptic Drugs Across the Blood-Brain Barrier

The transport of antiepileptic drugs (AEDs) across the blood-brain barrier (BBB) is a critical factor in their effectiveness, particularly in treating epilepsy. P-glycoprotein (Pgp) is a key efflux transporter at the BBB that can influence drug distribution and resistance. A study investigated the transport of phenytoin, levetiracetam, and carbamazepine using Pgp-transfected kidney cell lines. It was found that phenytoin and levetiracetam were transported by mouse Pgp but not by human Pgp, while carbamazepine was not transported by Pgp in either species [1].

Role of P-glycoprotein in Drug Resistance

P-glycoprotein is overexpressed in the endothelial cells of the BBB in patients with drug-resistant epilepsy, suggesting its role in limiting the brain penetration of AEDs. This overexpression is more pronounced in drug-resistant patients compared to drug-responsive ones. The study highlights that several AEDs are substrates or inhibitors of Pgp, which may contribute to drug resistance in refractory epilepsy [2].

Contribution of MRP2 to BBB Function

In addition to Pgp, the multidrug resistance protein MRP2 also plays a role in BBB function. MRP2 is found in the luminal surface of brain capillary endothelium and is overexpressed in patients with drug-resistant epilepsy. Phenytoin, an AED, has shown to be a substrate of MRP2, as evidenced by increased brain levels of phenytoin in MRP2-deficient rats. This suggests that MRP2 significantly contributes to the restriction of AED activity at the BBB [3].

Show all references

Ask a follow up question

Include preliminary research articles

Start a new conversation

Build your search using the PICO framework

Search tips

Default strategy: /exp

Population e.g. diabetes
atrial fibrillation /exp 12 synonyms: all

Intervention e.g. insulin
anticoagulant agent /exp 16 synonyms: all AND oral drug administration /exp 11 synonyms: all

Comparison e.g. placebo
warfarin /exp 69 synonyms: all

Outcome e.g. risk
ischemic stroke /exp 2 synonyms: all

Study design e.g. randomized controlled trial

Limit to

Show 1,067 results

Display full query

Search term in Emtree: atrial fibrillation

Emtree

- diseases
 - physical disease
 - physical disease by anatomical structure
 - cardiovascular disease
 - heart disease
 - heart arrhythmia
 - atrial fibrillation
 - chronic atrial fibrillation
 - experimental atrial fibrillation
 - new-onset atrial fibrillation
 - paroxysmal atrial fibrillation
 - permanent atrial fibrillation
 - persistent atrial fibrillation
 - heart fibrillation
 - atrial fibrillation
 - chronic atrial fibrillation
 - experimental atrial fibrillation
 - new-onset atrial fibrillation
 - paroxysmal atrial fibrillation
 - permanent atrial fibrillation
 - persistent atrial fibrillation

Example of a PICO search augmented by the Emtree life sciences thesaurus

Embase AI enables easy searching using natural language

Advance your research with Elsevier's Embase and a portfolio of solutions for **pharmaceutical R&D**. Discover, innovate and develop with confidence, supported by trusted quality information, innovative technology and scientific expertise. Let's shape progress together.

Learn more about Embase: elsevier.com/products/embase

