Europe PMC and open citations

Jo McEntyre
Head of Literature Services
www.ebi.ac.uk
Life Sciences
All living things are made from the same stuff
Data resources at EMBL-EBI

- Literature & ontologies
  - Experimental Factor Ontology
  - Gene Ontology
  - BioStudies
  - Europe PMC

- Genes, genomes & variation
  - Ensembl
  - Ensembl Genomes
  - GWAS Catalog
  - Metagenomics portal

- Gene, protein & metabolite expression
  - Expression Atlas
  - Metabolights
  - PRIDE
  - RNA Central

- Chemical biology
  - ChEBI
  - ChEMBL
  - SureChEMBL

- Protein sequences, families & motifs
  - InterPro
  - Pfam
  - UniProt

- Molecular structures
  - Protein Data Bank in Europe
  - Electron Microscopy Data Bank

- Systems
  - BioModels
  - BioSamples
  - Enzyme Portal
  - IntAct
  - Reactome

- Molecular Archives
  - European Nucleotide Archive
  - European Variation Archive
  - European Genome-phenome Archive
  - ArrayExpress
Publishing, credit and attribution in the life sciences

- Journal publishing (not monographs, preprints or conf proc)
- Impact factors
- Cutting edge
  - Article level metrics
  - Alternative forms of credit e.g. for data sets
  - Emerging interest in preprints
7000 full text journal titles
Europe PMC
Europe PMC

- Partnered with PubMed Central USA
- 29 Funders

Access more content

Single search interface

+ APIs
Powerful search based on rich metadata

Search worldwide, life-sciences literature

HER2 breast cancer

E.g. "breast cancer" HER2 Smith J

Results

1 - 25 of 41019 results

Select results 1 - 25

Neratinib Approved for HER2+ Breast Cancer.
Cancer Discov [04 Aug 2017, 7(9):OF1]

extended adjuvant treatment of early-stage HER2-positive breast cancer. The decision adds another treatment
Cited: 1 time (PMID:28778899)

Metastatic HER2+ Breast Cancer: A Potentially Curable Disease?

history of metastatic HER2-positive breast cancer, transforming it from an aggressive cancer subtype with a ... Predictor of Response to Dual HER2 Blockade in HER2-positive Early Breast Cancer) trial further evaluated
Cited: 0 times (PMID:29142802 PMCID:PMC5669532) Free full text article
Maximizing reuse of research

- Europe PMC is an open community platform
- Specialist scientific knowledge allows rich services and community engagement
- European science context
Citations
## Citation Network Processes

<table>
<thead>
<tr>
<th>Priority</th>
<th>Source</th>
<th>Total matched citations</th>
<th>Total citing articles</th>
<th>Citation Matching</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PMC</td>
<td>96 million</td>
<td>2.8 million</td>
<td>PMID or DOI, then strict match on journal abbreviation, ISSN, volume, page numbers etc.</td>
</tr>
<tr>
<td>2</td>
<td>Crossref OAI-PMH</td>
<td>226 million</td>
<td>10.3 million</td>
<td>DOI prefix, then fuzzy match journal abbreviation, ISSN, volume, page numbers etc.</td>
</tr>
<tr>
<td>3</td>
<td>PMC pre-compiled citations</td>
<td>13.6 million</td>
<td>0.84 million</td>
<td>PMID then DOI</td>
</tr>
</tbody>
</table>

20% unmatched
In more detail

Crossref OAI-PMH

{oai.crossref.org:80/OAIHandler?verb=ListRecords&set=10.1101&from=2018-08-01&until=2018-08-02&metadataPrefix=cr_unixml

\<article_title\>
\ Irisin in response to acute and chronic whole-body vibration 
\</article_title\>

\<citation key="2018080107060650800_8.8.802001.30">
\  <journal_title>Metabolism</journal_title>
  <volume>53</volume>
  <first_page>918</first_page>
  <year>2014</year>
  <doi provider="crossref">10.1016/j.metabol.2014.04.001</doi>
\</citation>
Request URL

https://www.ebi.ac.uk/europepmc/webservices/rest/MED/28117416/citations?page=1&pageSize=100&format=xml

Response Body

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
  <version>6.0.2</version>
  <hitCount>94</hitCount>
  <request>
    <id>28117416</id>
    <source>MED</source>
    <page>0</page>
    <pageSize>100</pageSize>
  </request>
  <citationList>
    <citation>
      <id>30057406</id>
      <source>MED</source>
      <citationType>journal article</citationType>
      <title>A phase II randomised (calibrated design) study on the activity of the single-agent trabectedin in metastatic or locally relapsed uterine leiomyosarcoma.</title>
      <journalAbbreviation>Br J Cancer</journalAbbreviation>
      <pubYear>2018</pubYear>
      <citedByCount>0</citedByCount>
    </citation>
  </citationList>
</responseWrapper>
Citation sort order
Citing articles ...

Europe PMC search results for "cites:28117416_MED". Results include:
Molecular docking screening using agonist-bound GPCR structures: probing the A2A adenosine receptor.

(PMID:25625646 PMCID:PMC4474233)

Abstract

Crystal structures of G protein-coupled receptors (GPCRs) have recently revealed the molecular basis of ligand binding and activation, which has provided exciting opportunities for structure-based drug design. The A2A adenosine receptor (A2AAR) is a promising therapeutic target for cardiovascular diseases, but progress in this area is limited by the lack of novel agonist scaffolds. We carried out docking screens of 6.7 million commercially available molecules against active-like conformations of the A2AAR to investigate whether these structures could guide the discovery of agonists. Nine out of the 20 predicted agonists were confirmed to be A2AAR ligands, but none of these activated the ARs. The difficulties in discovering AR agonists using structure-based methods originated from limited atomic-level understanding of the activation mechanism and a chemical bias toward antagonists in the screened library. In particular, the composition of the screened library was found to strongly reduce the likelihood of identifying AR agonists, which reflected the high ligand complexity required for receptor activation. Extension of this analysis to other pharmaceutically relevant GPCRs suggested that library screening may not be suitable for targets requiring a complex receptor-ligand interaction network. Our results provide specific directions for the future development of novel A2AAR agonists and general strategies for structure-based drug discovery.
Combining Open Data

SciLite: a platform for displaying text-mined annotations as a means to link research articles with biological data.
(PMID:28948232 PMCID:PMC5527546)

Abstract

The tremendous growth in biological data has resulted in an increase in the number of research papers being published. This presents a great challenge for scientists in searching and assimilating facts described in those papers. Particularly, biological databases depend on curators to add highly precise and useful information that are usually extracted by reading research articles. Therefore, there is an urgent need to find ways to improve linking literature to the underlying data, thereby minimising the effort in browsing content and identifying key biological concepts. As part of the development of Europe PMC, we have developed a new platform, SciLite, which integrates text-mined annotations from different sources and overlays those outputs on research articles. The aim is to aid researchers and curators using Europe PMC in finding key concepts more easily and provide links to related resources or tools, bridging the gap between literature and biological data.

850K ORCID IDs, 6M papers
Author profiles

Jo McEntyre
European Bioinformatics Institute (EMBL-EBI)

32
Publications in Europe PMC

21
Free full text articles in Europe PMC

241
Open citations in Europe PMC

Items published and open citations received each year

Download chart

EMBL-EBI
Scientists like big numbers

Why do articles in Europe PMC list fewer citations than other citation information services?

Relative Citation Ratio (RCR): A New Metric That Uses Citation Rates to Measure Influence at the Article Level

B. Ian Hutchins, Xin Yuan, James M. Anderson, George M. Santangelo

Published: September 6, 2016 • https://doi.org/10.1371/journal.pbio.1002541 • >> See the preprint
Paper citations, data citations

PDB record: 3EML

ACCESSION_ID: 3EML OR CITES: 18832607_MED

902
Preprints
Preprints in Europe PMC

- 47K abstracts
- No ref lists

7. Bond MR, Hanover JA. A little sugar goes a long way: the cell biology of O-GlcNAc. J Cell Biol. 2015; 208: 869-880. [https://doi.org/10.1083/jcb.201501101 (Europe PMC Abstract) [Europe PMC Full Text]

8. Chepelevskii AD. Towards physical laws for software architecture. 2010


Preprints are cited too