About us

Europe PubMed Central (Europe PMC) is a free life science and biomedicine information resource

Key facts

- Europe PMC provides a free, single point of access to the 23 million peer-reviewed scientific journal articles indexed by PubMed, and a further 5 million other records including biological patents.

- Europe PMC also holds in excess of 2.8 million full-text articles, all of which can be freely accessed.

- All Europe PMC content can be searched and browsed via the Europe PMC website (http://europepmc.org/). A number of web services are also available to support those users who require machine-to-machine, programmatic access.

- We provide searchable access to the grants awarded by the Europe PMC funders (http://europepmc.org/GrantLookup/), now numbering in excess of 40,000 records relating to around 20,000 principal investigators: find out who is being funded, to do what, and for how much.

- Stay up-to-date by following us on Twitter and reading the Europe PMC blog; learn about research of interest by setting up one of our customisable RSS feeds.

- Europe PMC is supported by 24 European research funders who each expect their researchers to make their articles open access.
3 Introduction

2013 was a very productive year for Europe PMC. This report details the main highlights. What could users do by the end of 2013, which they could not at the end of 2012?

- Claim an article and associate it with their ORCID iD.
- Search for content using an ORCID iD.
- Investigate links to external content provided by 3rd parties.
- Use a powerful advanced search to find content.
- Search only selected sections of full text.
- Access content programmatically using the new RESTful Web Service.
- Access grant-award data programmatically using the new GRIST RESTful Web Service.
- Discover many more grants associated with articles.
- Find articles that cite data and view related data in the context of the article.

In 2013, 346,000 full text articles were added to Europe PMC, of which a significant proportion is free to read and reuse.

The Europe PMC website performance was excellent overall throughout the year, and the continued delivery of this core requirement remains our top priority.
Engaging our Users

Our challenge was to reach users who range from researchers to public, funders to librarians, all of whom want access to high quality research information, but may have vastly different motivations for looking. Here are a few ways we engaged with our users:

Social media

Find out more: Twitter | Blog | Latest articles

On the blog we covered Open Access week, addressed some of your questions about Europe PMC, and described how you might use a new feature to make it relevant to you. It’s been great to see how some of these use cases have been taken up, and to learn of other ways that you are using Europe PMC. On Twitter we gave you search tips to improve your experience of Europe PMC; we’ve seen our followers grow by over 60% this year.

Science-writing competition

2013 saw the launch of our science-writing competition Access to Understanding, which challenges early career researchers to share scientific advances with an interested public audience. The competition celebrates our commitment to promoting communication of science beyond the confines of academia and developing these valuable skills in our entrants.

We announced the winners of Access to Understanding 2013 in March, from nearly 400 entrants. We launched Access to Understanding 2014 towards the end of the year in November. Each of the articles included in the competition is now accompanied by a plain English summary, making it truly accessible.

Out and about

We enjoyed meeting you and understanding your experiences of Europe PMC. This helps us to ensure future developments meet your expectations. Highlights this year included the Synthetic Biology SB6.0 and EMBO conferences, each attended by around 1000 delegates. We can provide a selection of branded collateral for conferences and events.

Engagement workshops for the Europe PMC Funders support the engagement activities of our members. They are also an opportunity to reflect on our place in the wider research landscape.

Europe PMC & ORCID

In 2013 Europe PMC explored the problematic subject of ambiguous author names. The simple requirement is to uniquely identify all works by an individual author unambiguously. However searching for articles based on author names is fraught with difficulty due to many authors sharing the same name; variations of the same name, and changed names, such as on marriage. We chose to use ORCID iDs to help solve these problems, so EMBL-EBI became a member of the ORCID foundation in order to develop Europe PMC to use and share ORCID-linked data as widely as possible.

The ORCID Foundation’s goal is to remove the confusion around the identity of researchers and scholars by maintaining a registry of unique identifiers. In this way linked research outputs can be associated unambiguously with their authors.
A web tool for linking articles to your ORCID iD

We developed a tool on the Europe PMC website to allow users to link their articles that are available in Europe PMC to their ORCID record.

The screen shot above shows the interface an author sees to find and claim their articles before exporting them to the ORCID record. To make the ORCID-linking tool as effective as possible, we put significant effort into improving the author name search in Europe PMC.

Integrating ORCID iDs into the Europe PMC website and search systems

The ORCID Foundation regularly provides us with public ORCID records. We use this information to enrich Europe PMC content with ORCID iDs, using them in the Europe PMC website and web services.

Authors can now search Europe PMC by their ORCID iD to retrieve an unambiguous list of their articles (for example, AUTHORID:"0000-0002-1767-9318"). ORCID iDs are now shown in two ways on articles:

1. In the article author list, there is an option to search by ORCID iD rather than author name
2. As a list of ORCID iDs at the end of an abstract. Clicking triggers a search on that ORCID iD

ORCIDs in Europe PMC: Statistics 31/12/13

- Unique ORCID iDs using the Europe PMC ORCID tool: 8,500
- Number of Europe PMC articles linked using the tool: 136,000
- Total number of articles in Europe PMC inked to an ORCID iD: 582,000
External Links Service

In July 2013 Europe PMC released the External Links Service, to allow people to publish links from article records to other relevant resources such as life science databases or full text articles in institutional repositories.

Which links are provided, and how they are updated, is entirely within the control of the link provider. For example, it could be a manually curated links list, or generated as the result of a text-mining algorithm. The only requirement is to extend the usefulness of articles in Europe PMC. External Links are presented on a tab, as shown in the following example:

You can read more about how to provide links on the following page: http://europepmc.org/LabsLink. Or alternatively email us at: labslink@europepmc.org.

Advanced Search, including Section-Level Search

The new Advanced Search form is more extensive and sophisticated than the one it replaces. Users can select fields to build up a search; a query builder box at the top of the page (which can also be edited) displays the syntax of the search being designed. The form can be accessed here, or by clicking on the cog icon to the right of the search box on the Europe PMC website. Key features include:

- Auto-suggest functionality on the journal, author, funder and grant ID fields
- Article section-level searching: restrict your search to specific sections of full text articles
- Data links and citations: easily select the databases that you are interested in
- External links: search by provider
- Hover help (see blue question mark icons) provided for the fields.
Programmatic Access and Workflows

A RESTful web service that provides programmatic access to Europe PMC article content was developed to provide an easy-to-use API. Furthermore, Mimas, also released a RESTful API on those data held in the grant award database GRIST (GRants Information SyTem). We see many advantages in enabling access to Europe PMC content via APIs, in particular as a means to support the development of novel services and applications. The APIs are already being used to incorporate Europe PMC content into related products such as metrics systems (PLOS) and CRIS systems (Converis and Symplectic).

We are also exploring more automated routes to uploading content to GRIST, removing the dependency on email and spreadsheet as the mechanism to convey this information. Wherever possible the intention is to use machine-to-machine connectivity to facilitate automatic data exchange to improve efficiency and data accuracy/fidelity. At the end of 2013, Telethon Italy was the first Funder to deliver new grant information in XML.

Cloud Compute

EMBL-EBI is piloting the use of cloud compute to allow machine access to big data resources, including the scientific literature. In the context of Europe PMC, we are working with NaCTeM and the EvidenceFinder application they developed to pilot the use of the cloud to host text-mining algorithms that operate on Europe PMC data. Ultimately, we would like to extend this service to other groups developing text-mining applications. The full demonstration of EvidenceFinder operating entirely in the cloud is expected early in 2014.

Grant-Article Associations

Europe PMC is now the richest source of public grant-article associations in the world. Grant-article associations are now setup to be processed into Europe PMC in three ways:

1. From PubMed
2. Via Grant Reporting systems (directly, or via aggregators such as ResearchFish or OpenAIRE)
3. Direct from Europe PMC plus (rather than via PubMed)

Information ingested from routes 2 and 3, above, which are unique to Europe PMC, are also now exported to PubMed when the grant component can be matched to a grant in GRIST using the new GRIST API. Over 100,000 grant-article associations, representing approximately 7,000 grants were ingested via these new routes in 2013. Cross-checking the small number of grants that do not match an existing record has improved the quality of data in Europe PMC, GRIST, and ResearchFish.
Data Citations

It is now possible to find papers based on the data they cite for several core life science databases, such as the European Nucleotide Archive, ArrayExpress, and PDBe, as well as databases that use data DOIs for example, Figshare and Dryad.

As well as searching the Europe PMC website, RSS feeds can also be created to alert you when a particular dataset or data type has been cited.

PLOS have since incorporated Europe PMC data citations into their Article Level Metrics (ALM) using the new RESTful APIs. The data citations in PLOS articles link back to Europe PMC.

Reference: Kafkas S, Kim JH, and McEntyre JR (May 2013) Database Citation in Full Text Biomedical Articles. PMCID: PMC3667078 doi:10.1371/journal.pone.0063184

Service Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract records added (approx.)</td>
<td>1,060,000</td>
</tr>
<tr>
<td>Full text content added (approx.)</td>
<td>346,000</td>
</tr>
<tr>
<td>Number of articles cited by end of year (approx.)</td>
<td>13,000,000</td>
</tr>
<tr>
<td>No. author manuscripts published to Europe PMC</td>
<td>1,935</td>
</tr>
<tr>
<td>Number of grants linked to papers in Europe PMC</td>
<td>2,259</td>
</tr>
<tr>
<td>No. grant-article associations imported into Europe PMC</td>
<td>118,580</td>
</tr>
<tr>
<td>Number of grants added to Europe PMC</td>
<td>4,621</td>
</tr>
<tr>
<td>Number of PI accounts created in Europe PMC</td>
<td>3,116</td>
</tr>
<tr>
<td>Number of tweets/followers (cumulative)</td>
<td>1,737/923</td>
</tr>
<tr>
<td>Number of blogs</td>
<td>34</td>
</tr>
<tr>
<td>Number of Helpdesk requests</td>
<td>1,576</td>
</tr>
<tr>
<td>Number of production software releases</td>
<td>45</td>
</tr>
</tbody>
</table>
Funded by

Delivered by

Europe PMC development is led by the European Bioinformatics Institute (EMBL-EBI), in partnership with the British Library, and the University of Manchester (Mimas and NaCTeM).