

OMM Query

- [Information Systems](#)
- [Open Mutation Miner](#)
- [Bioinformatics](#)
- [Text Mining](#)

1. Background

OMM Query is our online search interface for an index of full-text research papers from the complete [PMC Open Access Corpus](#) (nearly half a million documents), mined for mutation information with [Open Mutation Miner \(OMM\)](#) [1] and [OrganismTagger](#) [2]. It can be accessed using the [Mimir](#) query language, combining entity annotations with their features with plain text (see below for some examples).

Note that you can index your own set of documents through OMM and install a local query server, if you want to mine a different set of documents for mutation impact information: all software used in this process is freely available under open source licenses. Besides the web interface, it is also possible to query the Mimir server through a RESTful API. If you need paid support for customizing your own OMM installation, please [contact us](#) for possible options.

2. Example Queries

Searching index: PMC-2012-06-18

{impact} OVER affinity

Search

Results 1 - 10 of 6,993

2796128 (cached)

PIKKs (27). **The caffeine resistance mutations in TOR1 decrease affinity for caffeine or confer increased TORC1 kinase activity.** The W2176R mutation

2796128 (cached)

TORC1 kinase activity. **The W2176R mutation in TOR1 decreased affinity for caffeine.** Trp2176 is conserved in

2855616 (cached)

reported (7). **The ParM variant, labeled with two tetramethylrhodamines, binds ADP with relatively weak affinity (dissociation constant 30 µM) but responds to ADP binding with ~15-fold signal increase.** This means that the tetramethylrhodamine

2855616 (cached)

variant for tetramethylrhodamine labeling. **The same mutations had been successful in decreasing ATP affinity in the MDCC-ParM biosensor (7).** The new ParM mutant

Here are some queries you can try out (paste the text in [blue typewriter typeface](#) into the search box). For a full description of the Mimir query language, please refer to the [documentation](#). In the result list, you can click on the PubMed ID to see the paper directly in PMC, or click on the "cached" link to see the detected entities highlighted in the full-text:

How many *mutations* did you find in the PMC OAC?

[{MutationMention}](#)

What about *organisms*?

[{Organism}](#)

How many of the mutations have *Alanine* as the wild-type?

[{MutationMention wildType="A"}](#)

How many mutation *impacts* are there?

[{Impact}](#)

How many of these impacts affect the protein property *affinity*?

[{Impact} OVER affinity](#)

Show me all impacts due to the mutation "A43T":

[{Impact mutation="A43T"}](#)

Queries can be nested: *Show me all impacts that increased the thermal stability of a protein:*

[{Impact} OVER increase & {ProteinProperty class="ThermalStability"}](#)

Show me all detected sentences containing relations between impacts and protein properties:

[{impactOn}](#)

Show me all detected sentences containing relations between protein properties and physical quantities:

[{measuredWith}](#)

Additionally, you can perform a plain full-text search, which can also be combined with the annotations: *Show me all sentences that contain the phrase "we have shown"*

[{Sentence} OVER we have shown](#)

3. Online Query Interface

Click the link below to open the query window and enter your query. In the result list, clicking on the PubMed ID will bring you to the online version of the article, whereas clicking on "cached" will show a local copy (unformatted text only) with the query results highlighted (*note: you need to allow pop-ups*).

[Open OMM query page in a new window](#) You need Javascript to use the previous link or click [OMM Query Interface'](#)

References

1. [Naderi, N., and R. Witte. "Automated extraction and semantic analysis of mutation impacts from the biomedical literature". *BMC Genomics*, vol. 13, no. Suppl 4, pp. S10, 06/2012.](#)
2. [Naderi, N., T. Kappler, C. J. O. Baker, and R. Witte. "OrganismTagger: Detection, normalization, and grounding of organism entities in biomedical documents". *Bioinformatics*, vol. 27, no. 19 Oxford University Press, pp. 2721--2729, August 9, 2011.](#)



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