

Mitelman Database

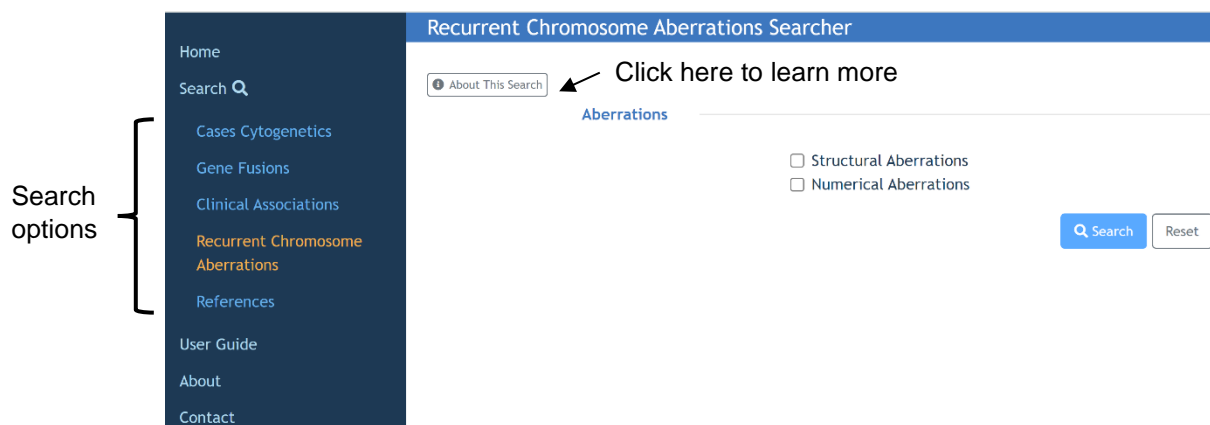
Mitelman Database of Chromosome Aberrations and Gene Fusions in Cancer (2024).

Mitelman F, Johansson B and Mertens F (Eds.), <https://mitelmandatabase.isb-cgc.org>

- This database describes cytogenetic changes observed in different tumor types based on data from the literature. This database is supported by the National Cancer Institute, the Swedish Cancer Society and the Swedish Childhood Cancer Foundation, and is updated quarterly.
- For more information about the database, click [here](#). This page also includes an option to download the Mitelman data.
- The Mitelman Database [User Guide](#) provides details of how to search the database including a description of the different search fields, how to format search terms, how to search multiple abnormalities at once, etc.
- This [blog post](#) from NCI also provides some historical background about the site and different ways to use the data.

General search tips

There are five search tools accessed by the toolbar on the left hand side of the page. You can learn more about any of the tools by clicking on “About This Search.” Some examples of how to search the database are shown on the next few pages.



The screenshot displays the Mitelman Database search interface. On the left, a dark blue sidebar lists search options: Home, Search, Cases Cytogenetics, Gene Fusions, Clinical Associations, Recurrent Chromosome Aberrations (highlighted in orange), References, User Guide, About, and Contact. A bracket on the left groups these as "Search options". The main content area is titled "Recurrent Chromosome Aberrations Searcher". It features a search bar with a magnifying glass icon and a button labeled "About This Search" with an information icon. An arrow points from the text "Click here to learn more" to the "About This Search" button. Below the search bar, there are checkboxes for "Structural Aberrations" and "Numerical Aberrations". At the bottom right, there are "Search" and "Reset" buttons.

Examples of how to search the database

- 1) **Recurrent Chromosome Aberrations** – this will provide recurrent cytogenetic changes (reported in more than one case of the same tumor type) which meet your specific search criteria. This can give you an idea of whether a given abnormality has been reported in a certain tumor type.

The screenshot shows the 'Recurrent Chromosome Aberrations Searcher' interface. On the left is a dark blue navigation sidebar with links: Home, Search (with a magnifying glass icon), Cases Cytogenetics, Gene Fusions, Clinical Associations, Recurrent Chromosome Aberrations (highlighted in orange), References, User Guide, About, and Contact. The main content area has a blue header with the title 'Recurrent Chromosome Aberrations Searcher'. Below the header, there is a text block explaining that recurrent aberrations include all cytogenetic changes present in at least two cases of the same morphologic entity, and whenever applicable for solid tumors, within the same site. It also mentions that complete karyotypes, patient characteristics, and references are found in the 'Cases Cytogenetics Searcher'. Below this is a section titled 'Tips for this Searcher:' with two bullet points: 'You must choose at least one of the following two fields: Structural Aberrations and Numerical Aberrations.' and 'You may select only one item in select menu'. At the bottom of the main content area, there is a search form with a link 'About This Search' (with an information icon), a label 'Aberrations', two radio button options: 'Structural Aberrations' and 'Numerical Aberrations', and two buttons: 'Search' (with a magnifying glass icon) and 'Reset'.

- a) Select either numerical or structural aberration.
 - i) For a numerical abnormality – select a chromosome, then select trisomy, monosomy, or all
 - ii) For a structural abnormality, enter a breakpoint (can be general, like “3p”, or more specific, like “3p13”) and select balanced, unbalanced, or all.
- b) (Optional) Select a gene involved in the rearrangement, topography (organ system), and morphology (type of neoplasm). The screenshots below show how to search for 3p abnormalities in kidney tumors.

Recurrent Chromosome Aberrations Searcher

Home
Search
Cases Cytogenetics
Gene Fusions
Clinical Associations
Recurrent Chromosome Aberrations
References
User Guide
About
Contact

[About This Search](#)

Aberrations

Structural Aberrations
 Numerical Aberrations

Structural Aberrations

Breakpoint

Aberration Type All
 Balanced
 Unbalanced

Gene Characteristics

Gene

Tumor Characteristics

Topography

Morphology

c) Results are grouped by tumor type and the type of abnormality observed. Clicking on the number of cases (last column) will pull up the individual case information, including the full ISCN and citation.

Recurrent Chromosome Aberrations Search Result

Home
Search
Cases Cytogenetics
Gene Fusions
Clinical Associations
Recurrent Chromosome Aberrations
References
User Guide
About

Structural Chromosomal Abnormalities

[< Back](#)

Show entries

Type	Morphology	Topography	Genes	Band	Abnormality	No of Cases
Unbalanced	Adenocarcinoma	Kidney		3p11	add(3)(p11)	11
Unbalanced	Adenocarcinoma	Kidney		3p11	del(3)(p11)	12
Unbalanced	Adenocarcinoma	Kidney		3p11	del(3)(p21p11)	2

Show 10 entries

<input type="checkbox"/>	Morphology	Topography	Karyotype	Case No	Reference	View Case
<input type="checkbox"/>	Adenocarcinoma	Kidney	42,X,-Y,add(3)(p11),+7,-8,-9,-10,+16,-21,-22 View Karyotype Details →	79	Mertz et al 2008, Int J Cancer	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	42,XY,+del(1)(p11),add(3)(p11),der(4;5)(p10;p10),del(5)(p11),add(8)(p11),-9,-13,-14,-15,del(18)(q21),-22,+mar View Karyotype Details →	1	Dal Cin et al 1996, J Urol	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	43-45,XX,add(3)(p11),del(9)(p21),-10,del(11)(q23),-14,+10mar View Karyotype Details →	8	Verdorfer et al 1999, Cancer Genet Cytogenet	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	44-45,XY,add(3)(p11),-14/86-88,idemx2/41-45,idem,-9 View Karyotype Details →	72	Gunawan et al 2001, Cancer Res	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	45,XY,add(3)(p11),add(4)(q21)/44,idem,-9,-14/47,idem,+7,+20 View Karyotype Details →	2	Kuroda et al 2010, Pathol Int	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	46,X,-Y,add(3)(p11),-9,-14,+16,+20,+mar View Karyotype Details →	8	Lau et al 2007, Cancer Genet Cytogenet	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	46,XX,add(3)(p11) View Karyotype Details →	424	Kovacs & Frisch 1989, Cancer Res	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	70-75,XXX,+2,add(3)(p11),+11,+mar,inc View Karyotype Details →	38	Kardas et al 2005, Oncol Rep	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	72-76,X?,+2,add(3)(p11),+5,+6,+7,+9,+10,+11,+12,-14,+15,+16,+18,+20,-21,-22 View Karyotype Details →	162	Mertz et al 2008, Int J Cancer	↻
<input type="checkbox"/>	Adenocarcinoma	Kidney	78-79,XXY,+Y,+2,-3,add(3)(p11)x2,+4,+5,+7,-8,del(9)(p21),+11,+12,+16,-18,+19,+20,+22 View Karyotype Details →	25	Verdorfer et al 1999, Cancer Genet Cytogenet	↻

Showing 1 to 10 of 11 entries

2) **Cases Cytogenetics** – Similar to the recurrent chromosomes aberrations search, but pulls up individual cases that meet your search criteria. Includes options to specify type of abnormality (del, add, t(3;5), etc.), whether or not it occurs as the sole abnormality, and tumor type. The Advanced Search provides more options including number of clones, number of chromosomes, patient characteristics (including whether or not they have a hereditary disorder) along with details of the cancer history.

a) You can search multiple abnormalities at the same time, separated by a comma (select “And” to find cases which include both abnormalities, “Or” to find cases which include either abnormality).

Cases Cytogenetics Searcher

[About This Search](#)

Click here to learn more

Advanced Search Off On Click here to see additional search fields


Sole Abnormality No Yes

Abnormality And Or

Breakpoint And Or

Topography

Morphology

 Special Morphology

3) **Gene Fusions** – identifies studies describing gene fusions, with results organized by tumor type. This tool does not search individual patient cases.

a) Allows you to search by chromosomal breakpoint and/or by the gene(s) involved.

Cytogenetic Characteristics

Abnormality And Or

Breakpoint And Or

Morphology	Topography	Abnormality	Genes	Immuno	Reference
Acute erythroleukemia (FAB type M6)		t(1;4;9;9;22) (q24;q31;q34;p13;q11)	BCR::ABL1		Price et al 1988, Blood
Acute erythroleukemia (FAB type M6)		t(9;22)(q34;q11)	BCR::ABL1		Wu et al 2011, Leuk Res
Acute erythroleukemia (FAB type M6)		t(9;22)(q34;q11)	BCR::ABL1		Yamamoto et al 2000, Eur J Haematol
Acute lymphoblastic leukemia/lymphoblastic lymphoma		der(22)t(9;22) (q34;q11)ins(22;9) (q11;q33q33)	BCR::RAGPS1::ABL1	B-Lineage	McCarron et al 2011, Leuk Lymphoma
Acute lymphoblastic leukemia/lymphoblastic lymphoma		t(1;9)(p34;q34)	SFPQ::ABL1	B-Lineage	Duhoux et al 2011, Leuk Res
Acute lymphoblastic leukemia/lymphoblastic lymphoma		t(1;9)(p34;q34)	SFPQ::ABL1	B-Lineage	Hidalgo-Curtis et al 2008, Genes Chromosomes Cancer
Acute lymphoblastic leukemia/lymphoblastic lymphoma		t(1;9)(q24;q34)	ABL1+	B-Lineage	De Braekeleer et al 2007, Leukemia

b) When searching by gene, you can specify one or both partners involved in the rearrangement.

Gene Characteristics

Gene And Or

Tumor Characteristics

Topography

Morphology

Immunophenotype

myd

HIPK2::MYCBP2

IGH::MYC

IGH::MYCN

IGK::MYC

IGL::MYC

IRAG2::MYC

LRATD2::MYC

LUC7L3::MYCBPAP

MYC

MYC::ARHGGE17

c) (Optional) Specify tumor characteristics or provide a reference to search.

Tumor Characteristics

Topography

Morphology

Immunophenotype B Lineage
 T Lineage

References

Authors

 Journal

Year

Ref No

Inv No

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