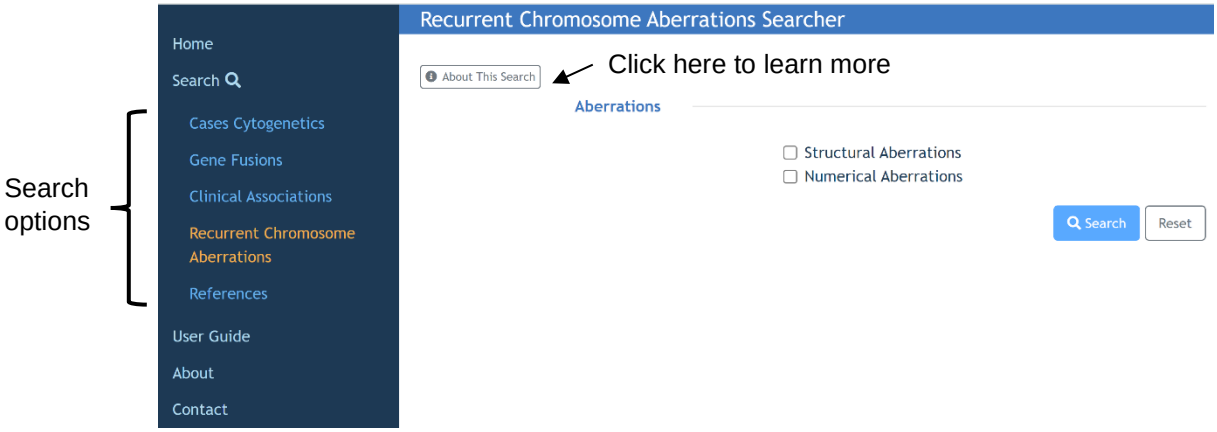
Mitelman Database

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.

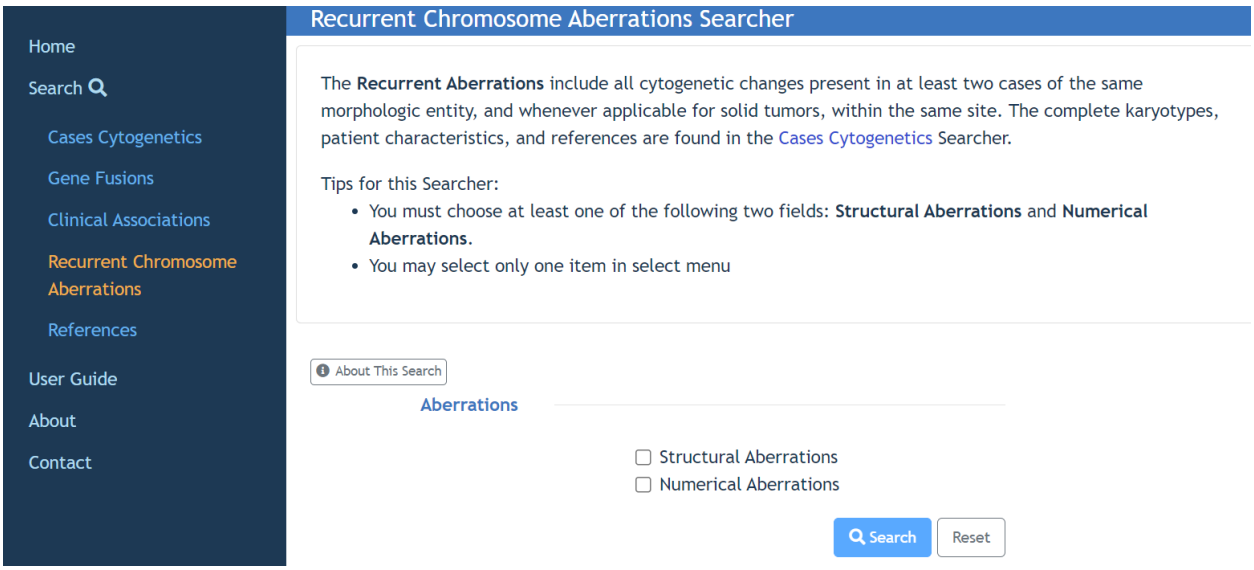
General search tips

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.



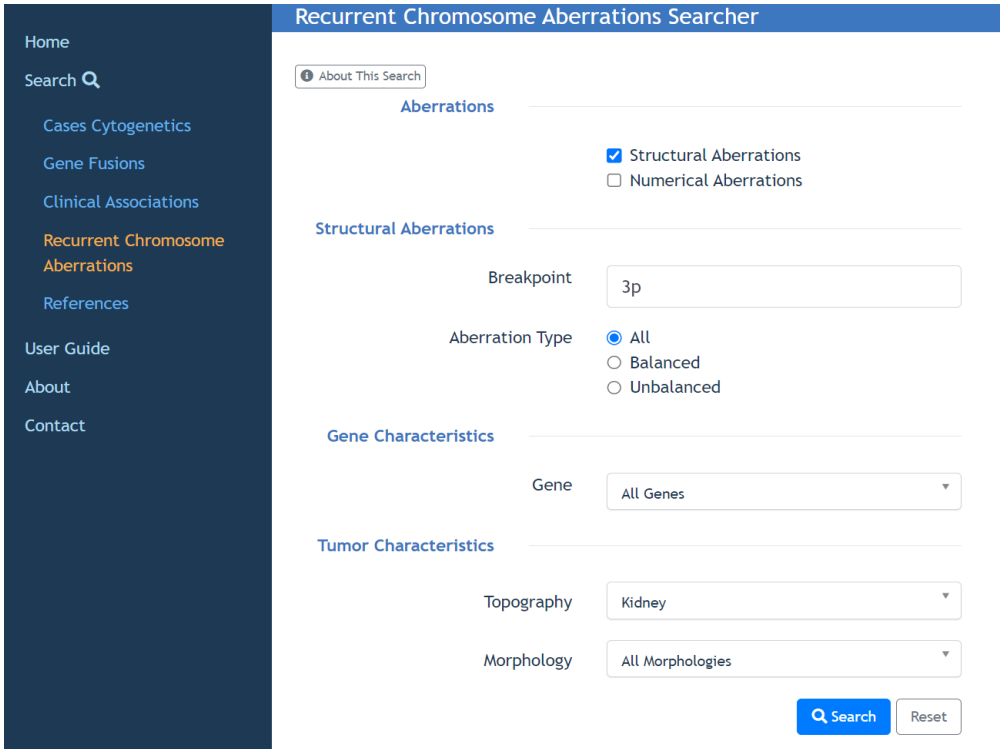
Examples of how to search the database

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.

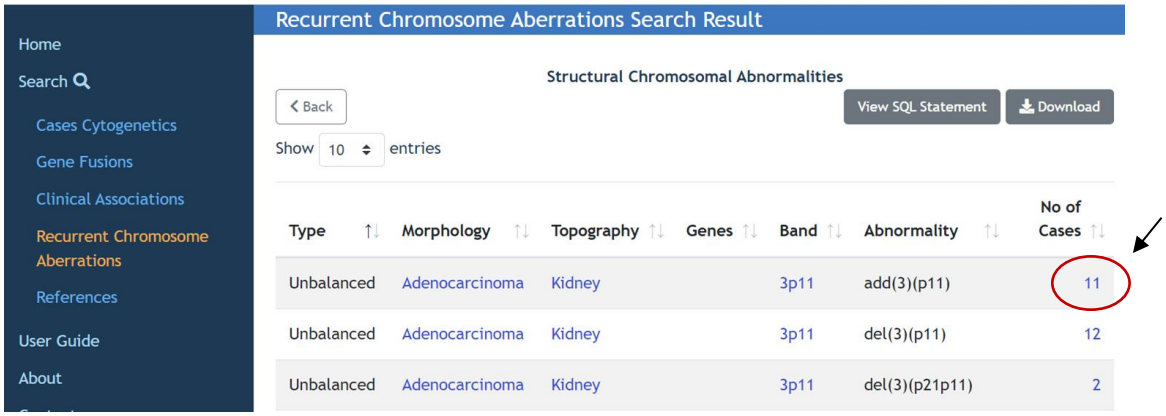


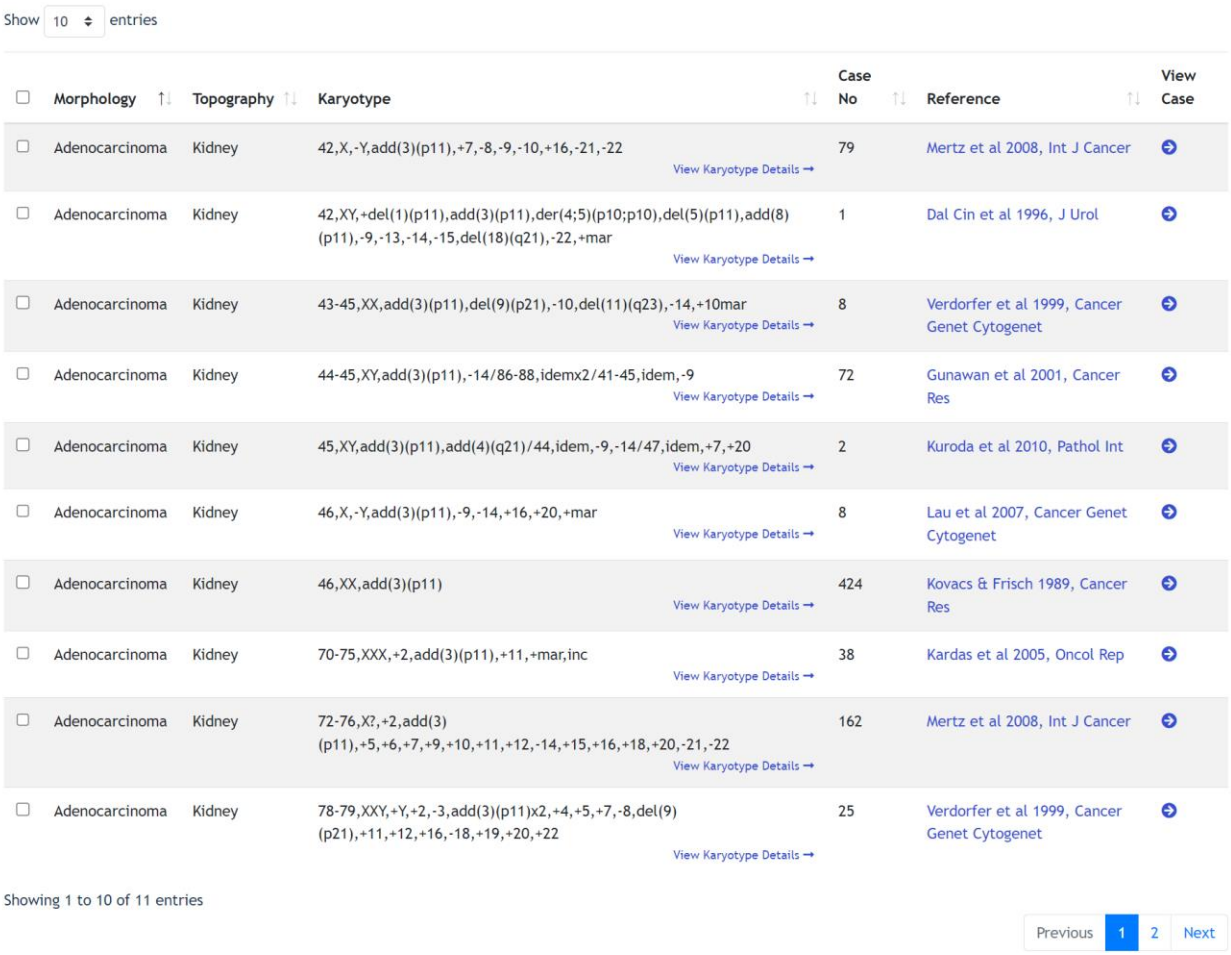
a) Select either numerical or structural aberration.
   i) For a numerical abnormality – select a chromosome, then select trisomy, monosomy, or all
   ii) For a structural abnormality, enter a breakpoint (can be general, like “3p”, or more specific, like “3p13”) and select balanced, unbalanced, or all.

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.



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.





Show 10 entries

Morphology	Topography	Karyotype	Case No	Reference	View Case
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	
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	
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	
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	
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	
Adenocarcinoma	Kidney	46,X,-Y,add(3)(p11),-9,-14,+16,+20,+mar View Karyotype Details →	8	Lau et al 2007, Cancer Genet Cytogenet	
Adenocarcinoma	Kidney	46,XX,add(3)(p11) View Karyotype Details →	424	Kovacs & Frisch 1989, Cancer Res	
Adenocarcinoma	Kidney	70-75,XXX,+2,add(3)(p11),+11,+mar,inc View Karyotype Details →	38	Kardas et al 2005, Oncol Rep	
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	
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

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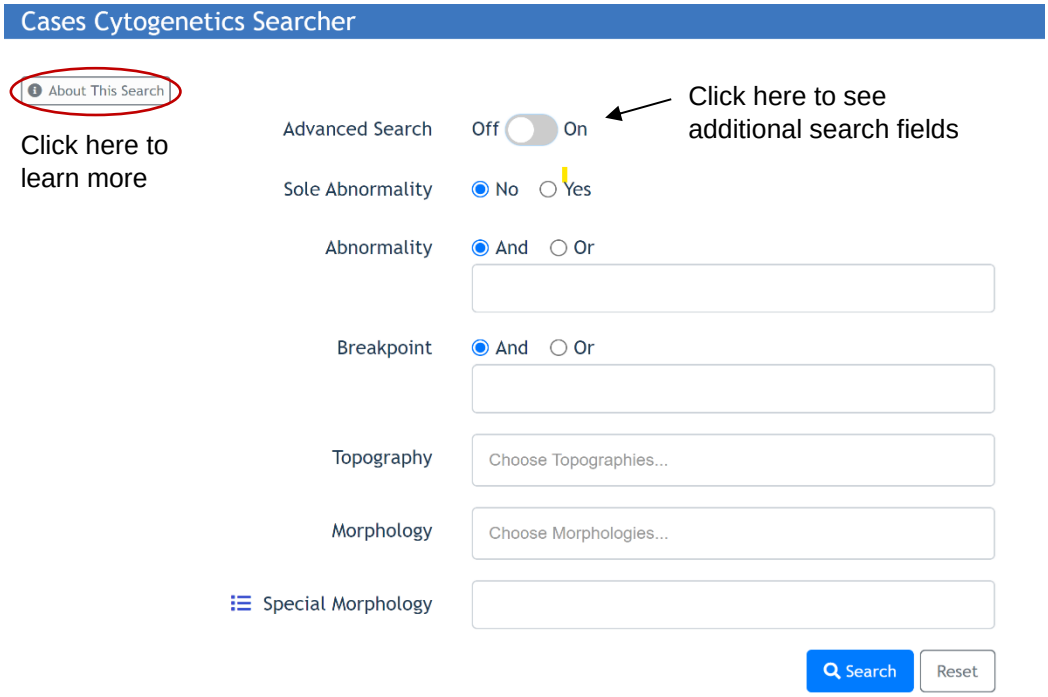
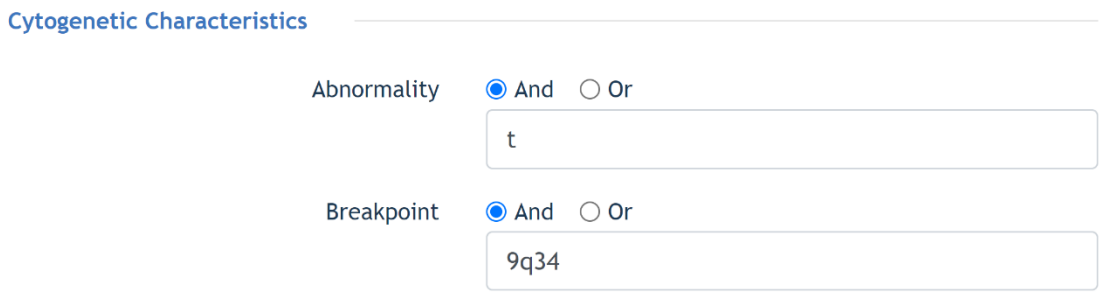
2) **Cases Cytogenetics** – Similar to the recurrent chromosomes aberrations search, but pulls up individual cases that meet your search criteria. Includes options to specify type of abnormality (del, add, t(3;5), etc.), whether or not it occurs as the sole abnormality, and tumor type. The Advanced Search 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).



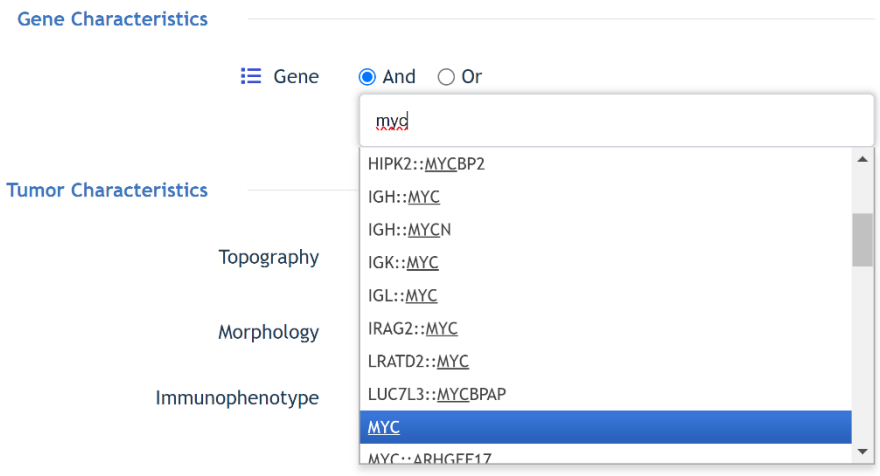
3) **Gene Fusions** – identifies studies describing gene fusions, with results organized by tumor type. This tool does not search individual patient cases.

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

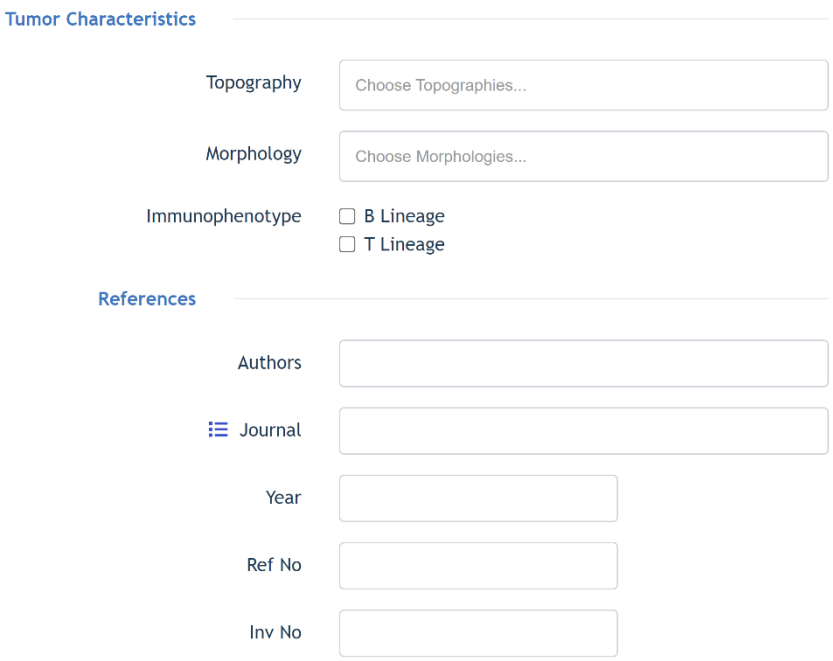


Morphology	Topography	Abnormality	Genes	Immuno	Reference
Acute erythroleukemia (FAB type M6)		t(1;4;9;9;22)(q24;q31;q34;p13;q11)	BCR::ABL1		Price et al 1988, Blood
Acute erythroleukemia (FAB type M6)		t(9;22)(q34;q11)	BCR::ABL1		Wu et al 2011, Leuk Res
Acute erythroleukemia (FAB type M6)		t(9;22)(q34;q11)	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::RALGPS1::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.



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



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Initial Posting: April 2024

CANCER GENOMICS CONSORTIUM