i(X)(q10) in male patient

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Published in Atlas Database: February 2017
Online updated version: http://AtlasGeneticsOncology.org/Anomalies/iXq10MaleID1492.html
Printable original version: http://documents.revues.inist.fr/bitstream/handle/2042/68753/02-2017-iXq10MaleID1492.pdf
DOI: 10.4267/2042/68753

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Abstract

Review on i(X)(q10) in male patients.

KEYWORDS

Chromosome X; Acute lymphoblastic leukemia; Diffuse large B-cell lymphoma; Follicular Lymphoma.

Identity

i(X)(q10) Â· Partial karyotypes (G-banding) with i(X)(q10). Hybridization with CEP X Spectrum Orange probe specific for the alpha satellite (centromeric) chromosome X region, (Abbott Molecular, US) showing the signal on normal X and on i(X)(q10) chromosomes- Courtesy Adriana Zamecnikova.

Clinics and pathology

Chromosome X: Acute lymphoblastic leukemia; Diffuse large B-cell lymphoma; Follicular Lymphoma.

Disease

Extremely rare i(X)(q10) occurs in male patients, only five cases have been reported in lymphoid malignancies, including acute lymphoblastic
leukemia (ALL) (Bacher et al, 2009), diffuse large B-cell lymphoma (Itoyama et al, 2002, Gindina T.,

**Table 1.** Reported cases with i(X)(q10).

<table>
<thead>
<tr>
<th>#</th>
<th>Pts Age, gender</th>
<th>Disease</th>
<th>Karyotype</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>51, M</td>
<td>B-cell precursor ALL (relapse after CT)</td>
<td>46,Y,i(X)(q10),der(1)dup(1)(q32q21)t(1;17)ins(7;8)(p21;p21,23),del(17)t(1;17)(q42;q23)[6]/46,XY[17]</td>
<td>Bacher et al, 2009</td>
</tr>
<tr>
<td>2</td>
<td>?, M</td>
<td>DLBCL</td>
<td>47-48,Y,i(X)(q10),-,Y,inv(1)(p32q21),del(2)(q13),hsr(3)(q27),add(4)(q35),del(4)(q31),- 6,7,der(11)(5;11)(q13;q23),+13,t(14;18)(q22;q11),del(15),-15,16,-17,+mar</td>
<td>Itoyama et al, 2002</td>
</tr>
<tr>
<td>3</td>
<td>60, M</td>
<td>DLBCL</td>
<td>67&lt;3n&gt;,Y,add(X)(p22),i(X)(q10),-2,del(2)(p21),- 4,+7,7,del(7)(p22,22),der(8)(p12)(8;11)(q24;q13),+9,i(9)(p10),+12,der(12)(4;12)(q13;p13),add(12)(p13),-13,+14,14(q10),-15,-15,i(15)(q10),-16,add(17)(p11),add(18)(q23),-19,add(20)(q13),+21,i(21)(q10),-22,+mar [20]</td>
<td>Gindina T, own case</td>
</tr>
<tr>
<td>4</td>
<td>75, M</td>
<td>FL</td>
<td>47,XY,i(X)(q10),t(1;11)(p36;q21),del(4)(q32),del(9)(q21),t(14;18)(q32;q21)[8]/46,XY[2]</td>
<td>Dave et al, 1999</td>
</tr>
<tr>
<td>5</td>
<td>?, M</td>
<td>FL</td>
<td>48,XY,i(X)(q10),i(X)(p10),add(1)(q1),+12,add(14)(q7)/48,Y,i(X)(q10),i(X)(p10),add(1)(t;2;8)(p12;q24),+12,add(14)</td>
<td>Donti et al, 1988</td>
</tr>
</tbody>
</table>

ALL: acute lymphoblastic leukemia; DLBCL: diffuse large B-cell lymphoma; FL: follicular lymphoma

**Cytogenetics**

Complex karyotype with extra i(X)(q10) in a patient with DLBCL (table 1, #3).
**Additional anomalies**

Additional chromosome anomalies were observed in all five patients. Extra i(X)(q10) was present in 3 patients (Donti et al., 1988; Dave et al., 1999; Gindina et al, case #3). Associated in combination with other isochromosomes in 2 patients (Donti et al, 1988; Gindina, case #3). In all cases, i(X)(q10) is part of a complex karyotype. t(14;18)(q32;q21) was found in 2 cases: 1 FL case and 1 DLBCL (Dave et al, 1999; Itoyama et al, 2002).

**Result of the chromosomal anomaly**

**Fusion protein**

**Oncogenesis**

The major consequence of this abnormality is loss of several genes on Xp and gain of several genes on Xq, that leads to genetic imbalance.

**References**


*This article should be referenced as such:*