**CONTEXT OF THE STUDY**

The flat oyster *Ostrea edulis* is the species endemic to European coasts, both Atlantic and Mediterranean. It has been exploited since Roman times, but its aquaculture production decreased from around 20,000 tons in the 1950s to 1500 tons today because of two successive diseases due to the intracellular parasites *Martesilia refringens* and *Bonamia ostreae*. Since 1985, Ifremer has been undertaking a breeding program to produce families of oysters tolerant to *Bonamia*. In this context, a further step would be to identify QTLs for resistance to this parasite. Therefore, as a first step a genetic map is now being built.

The establishment of a genetic linkage map will provide a foundation for the mapping of QTLs, with the ultimate objective to implement marker-assisted selection in *O. edulis*.

PRODUCTION OF SEGREGATING FAMILIES (biparental crosses)

<table>
<thead>
<tr>
<th>Year</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>G2</td>
</tr>
<tr>
<td>2000</td>
<td>F0</td>
</tr>
<tr>
<td>2003</td>
<td>F1-L</td>
</tr>
<tr>
<td>2004</td>
<td>F2-L</td>
</tr>
</tbody>
</table>

**RESULTS**

- Segregation distortion was assessed by Chi-square goodness of fit
  - NS p>0.01
  - 3:1 p<0.05

- AFLPs
  - Mendelian

- Microsatellites
  - 25% (4)

<table>
<thead>
<tr>
<th>Linkage groups</th>
<th>LG1</th>
<th>LG2</th>
<th>LG3</th>
<th>LG4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cM</td>
<td>97.5</td>
<td>81.5</td>
<td>68.9</td>
<td>59.9</td>
</tr>
<tr>
<td>Largest interval</td>
<td>3.0</td>
<td>16.1</td>
<td>9.1</td>
<td>11.5</td>
</tr>
</tbody>
</table>

**MOLECULAR TOOLS**

- 20 microsatellites (1, 2, 3, 4, 5)
- 60 AFLPs primer pairs

- Three dyes: FAM, HEX and NED
- Selection of good-quality peaks and double-checking of data

**MAP CONSTRUCTION**

- CRI-MAP v2.4 (Green et al., 1990)
- Two-point linkage was determined at LOD=3.0
- Multipoint linkage analysis was performed using the BUILD and ALL options to determine the highest likelihood order of markers in each linkage group.

The best map was tested against alternative orders using FLIPS3 option.

The CHROMPIC option was used to identify unlikely double crossovers.

**REFERENCES**