

EXHIBIT 12



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United States Patent [19]
Caskey et al.

[11] **Patent Number:** **6,107,025**
[45] **Date of Patent:** ***Aug. 22, 2000**

- [54] **DIAGNOSIS OF THE FRAGILE X SYNDROME**
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- [*] Notice: This patent is subject to a terminal disclaimer.
- [21] Appl. No.: **07/705,490**
- [22] Filed: **May 24, 1991**
- [51] **Int. Cl.**⁷ **C07H 21/02**; C07H 21/04; C12Q 1/68; C12P 19/34
- [52] **U.S. Cl.** **435/6**; 435/91.2; 536/23.1; 536/24.33; 536/24.1
- [58] **Field of Search** 435/91.2, 6; 536/27, 536/23.1, 24.1, 24.33; 935/77, 78

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[57] **ABSTRACT**

A sequence of the FMR-1 gene is disclosed. This sequence and related probes, cosmids and unique repeats are used to detect X-linked diseases and especially the fragile X syndrome.

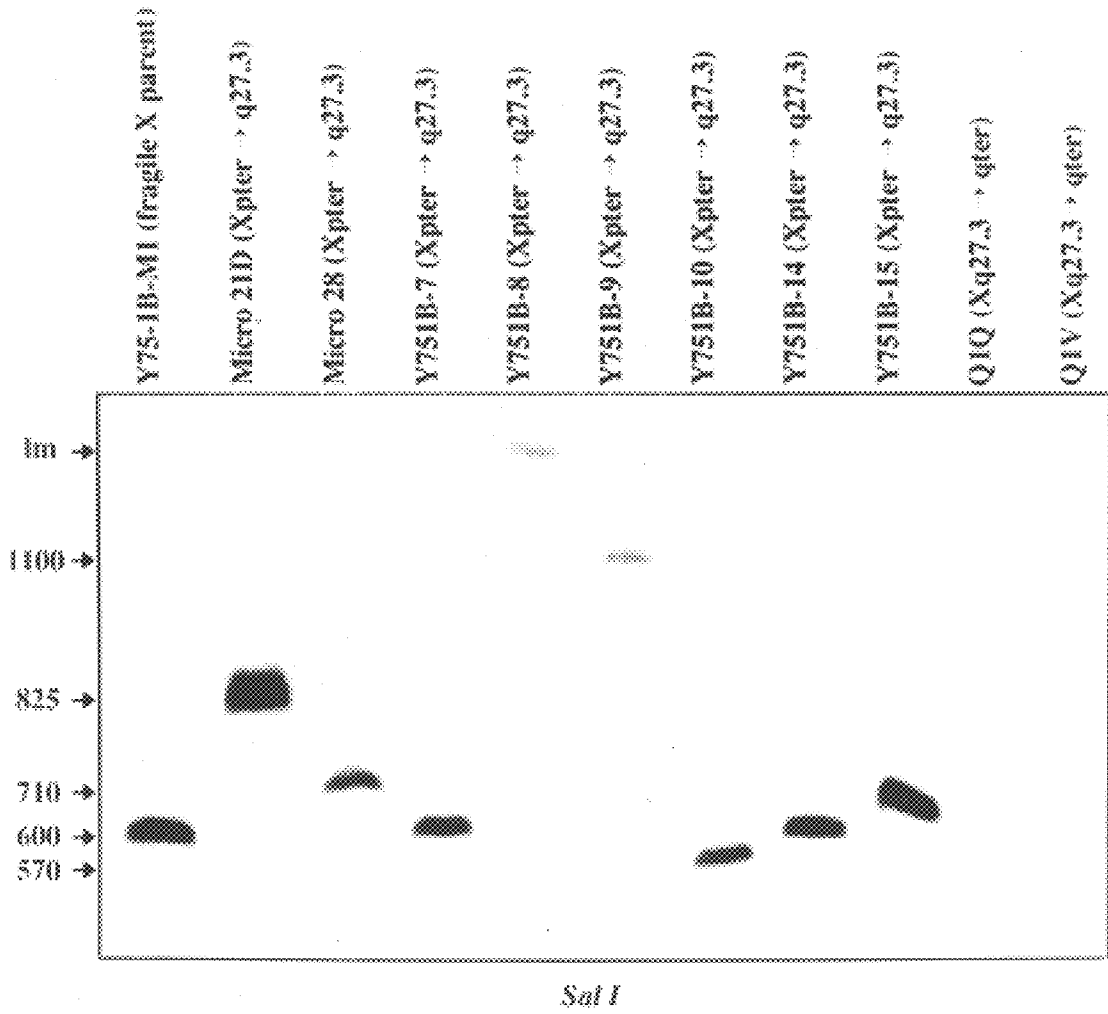


Figure 1

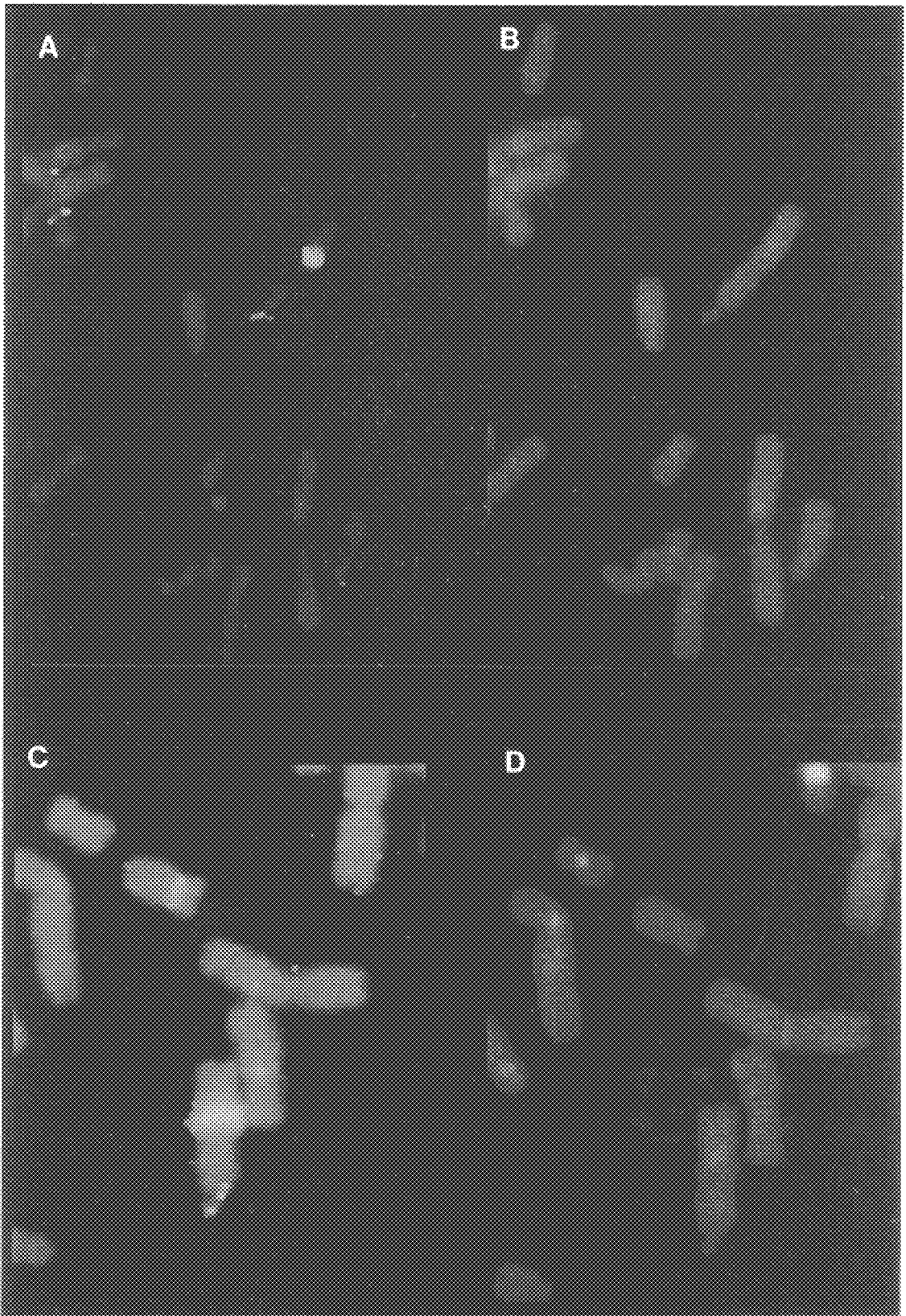


Figure 2

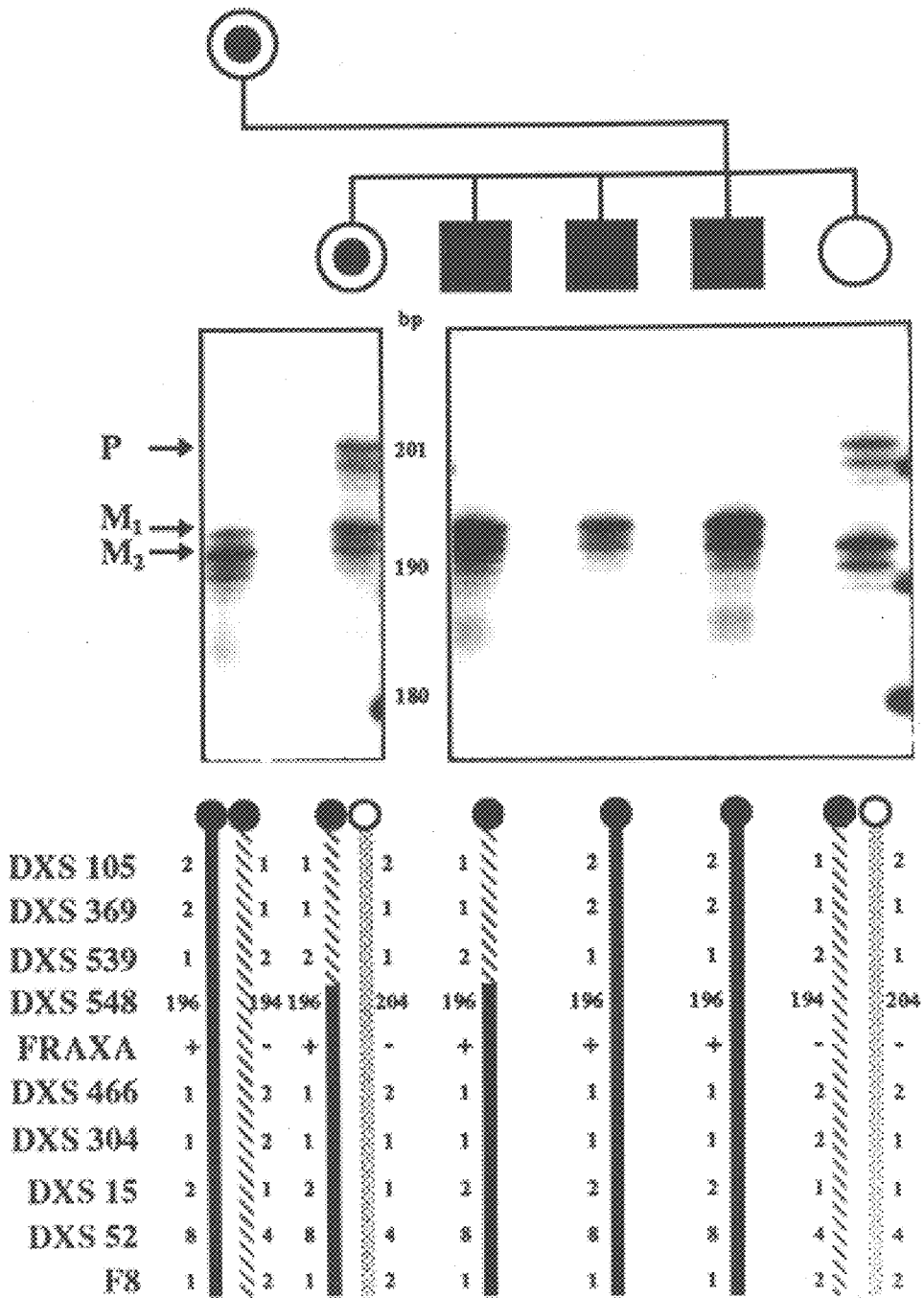


Figure 3

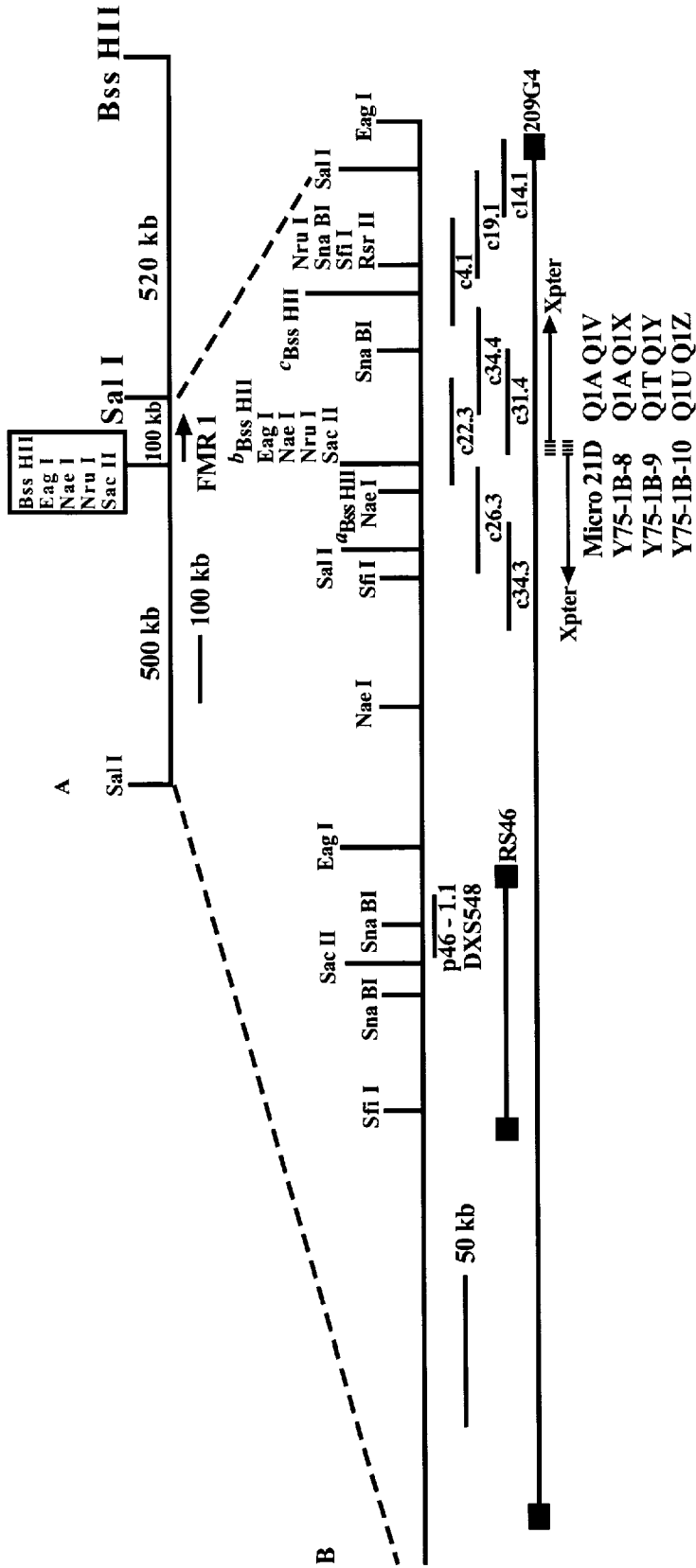


Figure 4

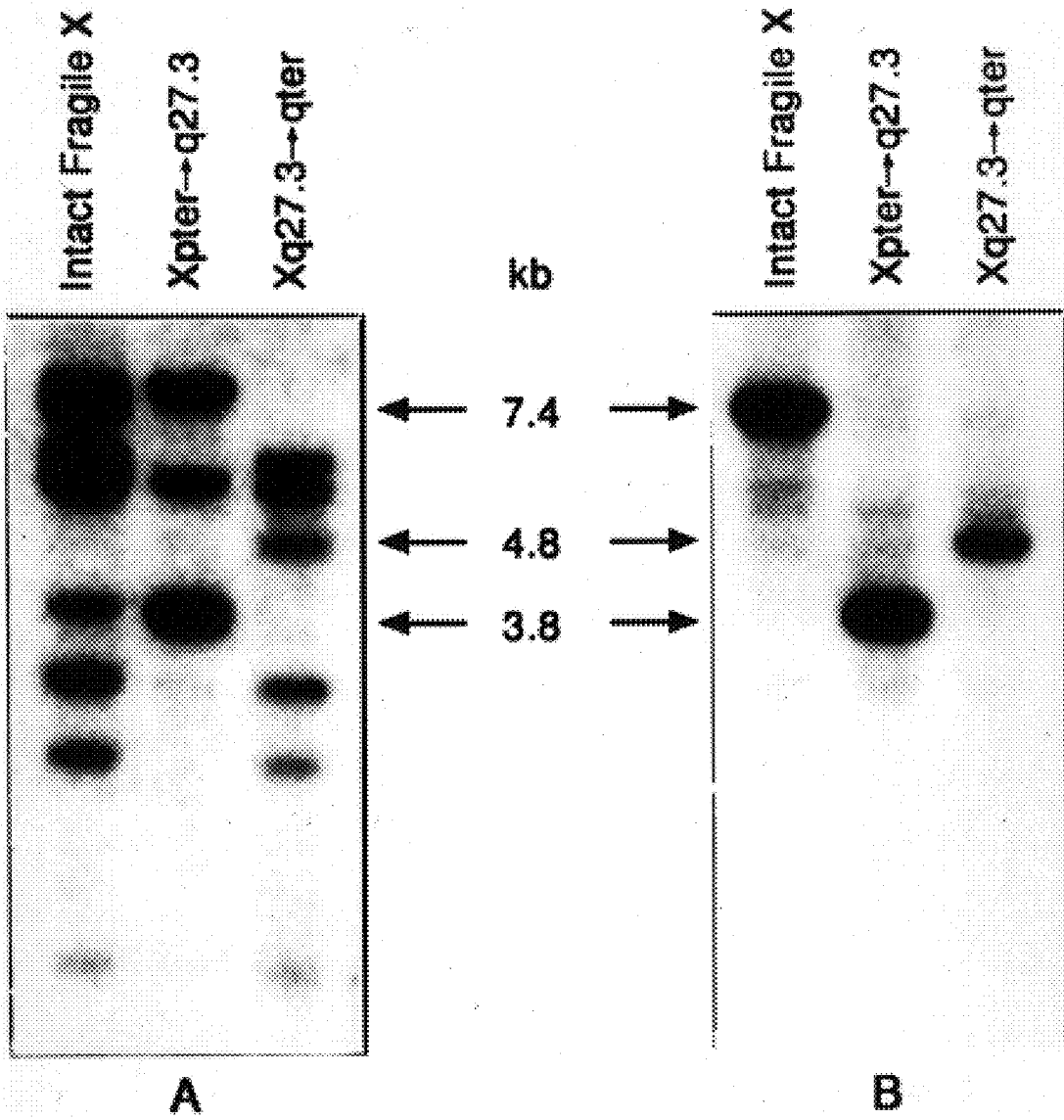


Figure 5

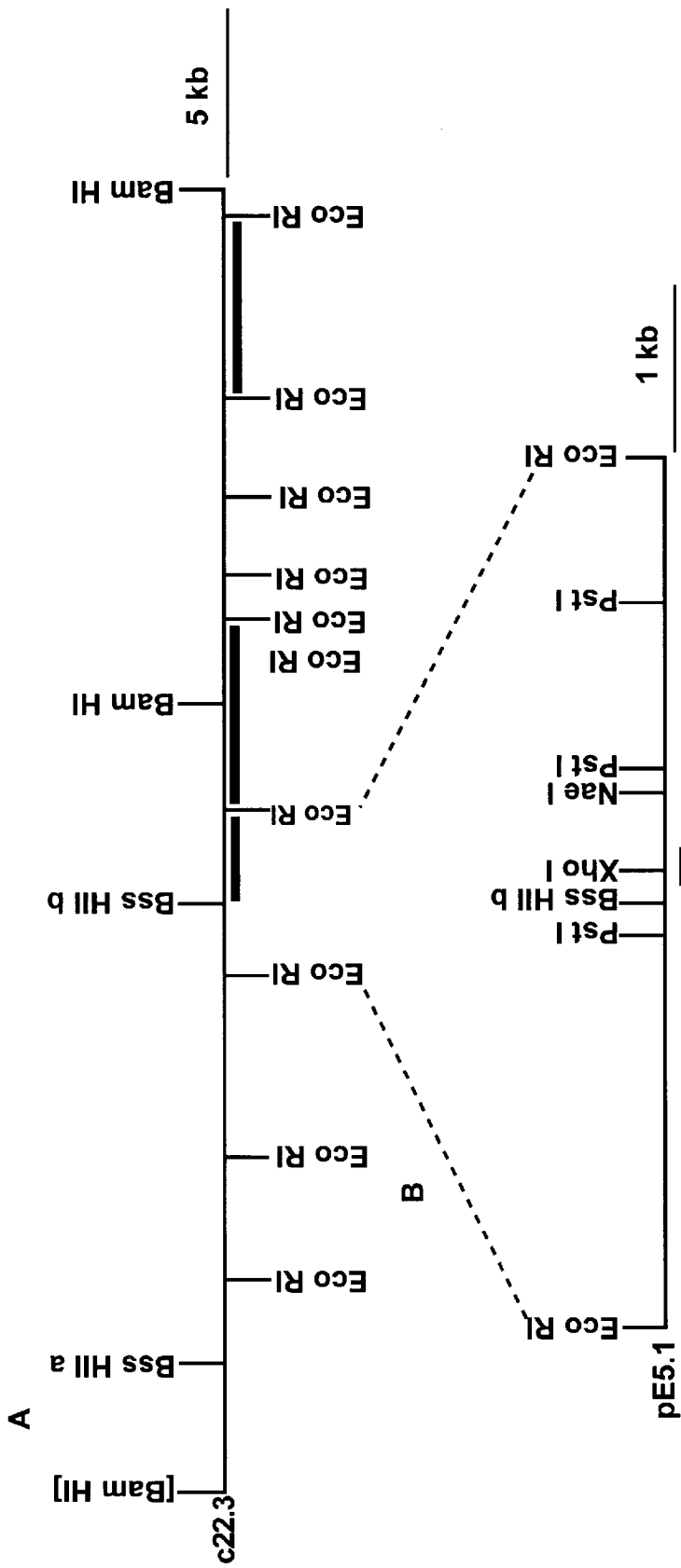


Figure 6

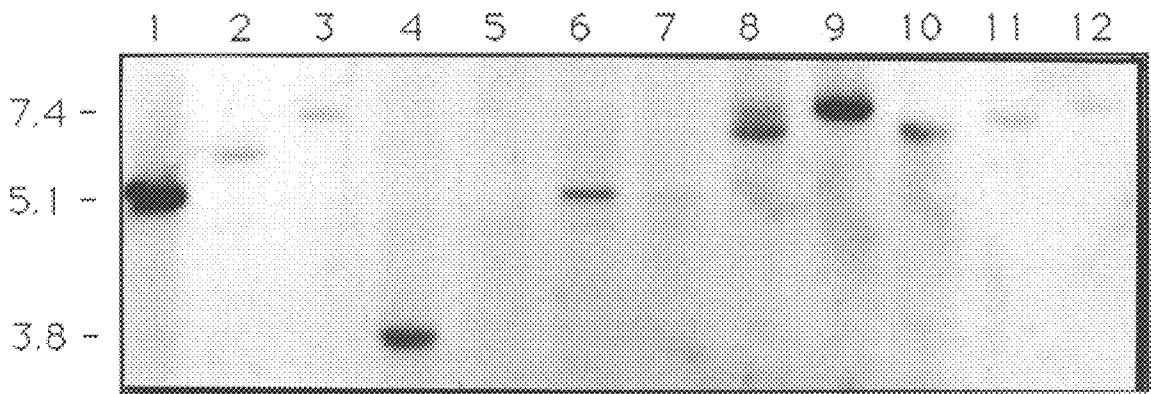


Figure 7

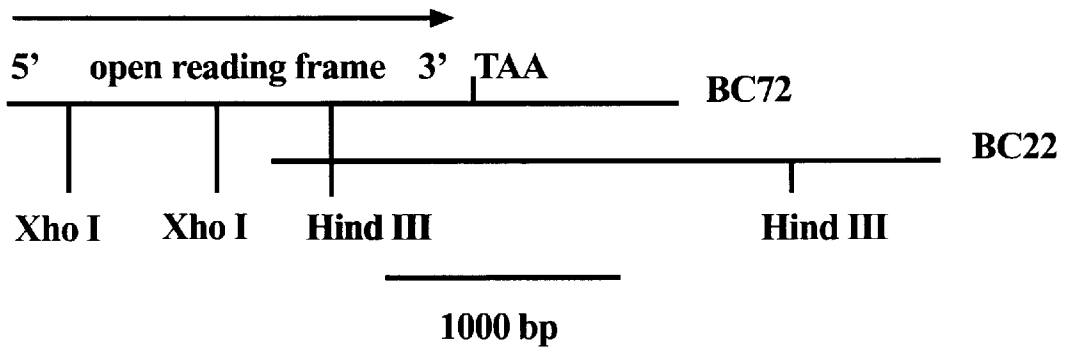


Figure 8

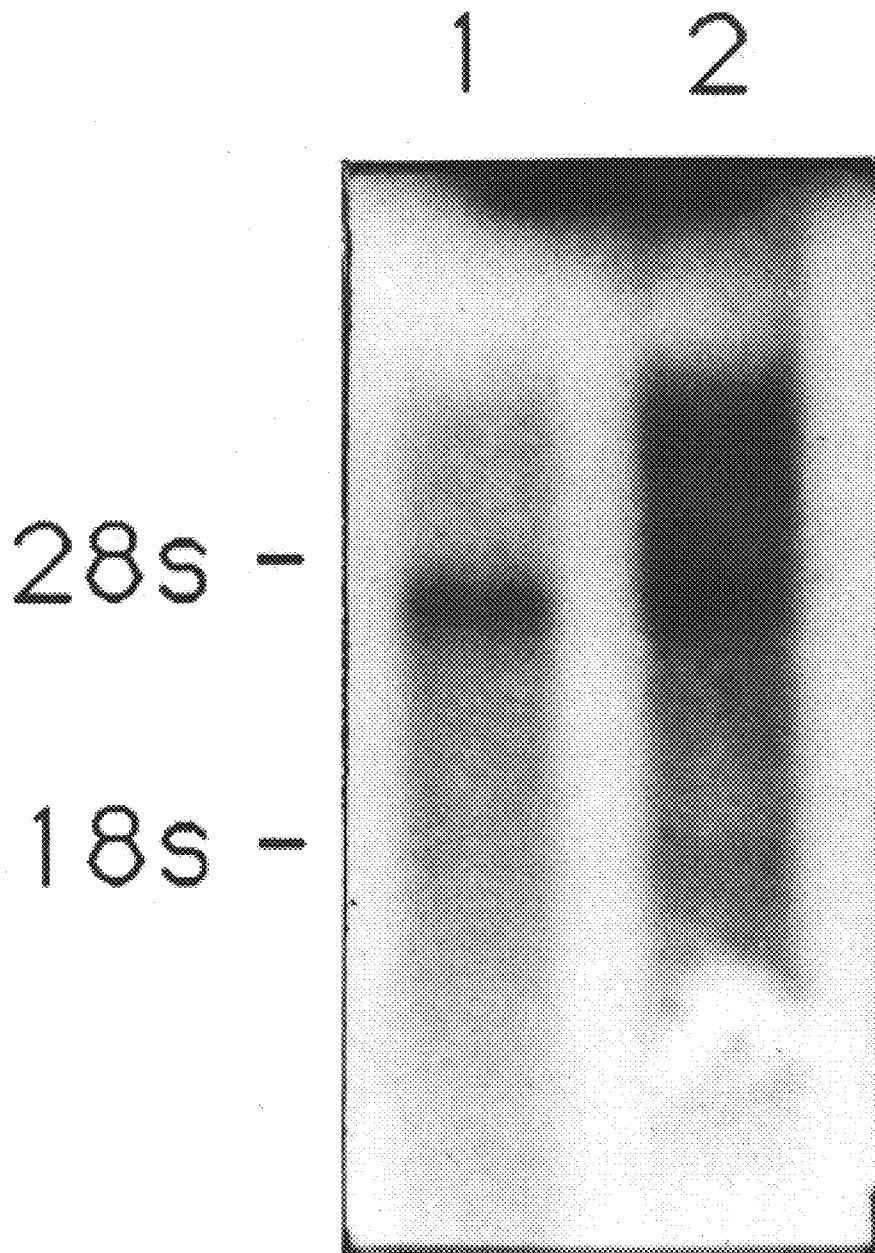


Figure 9

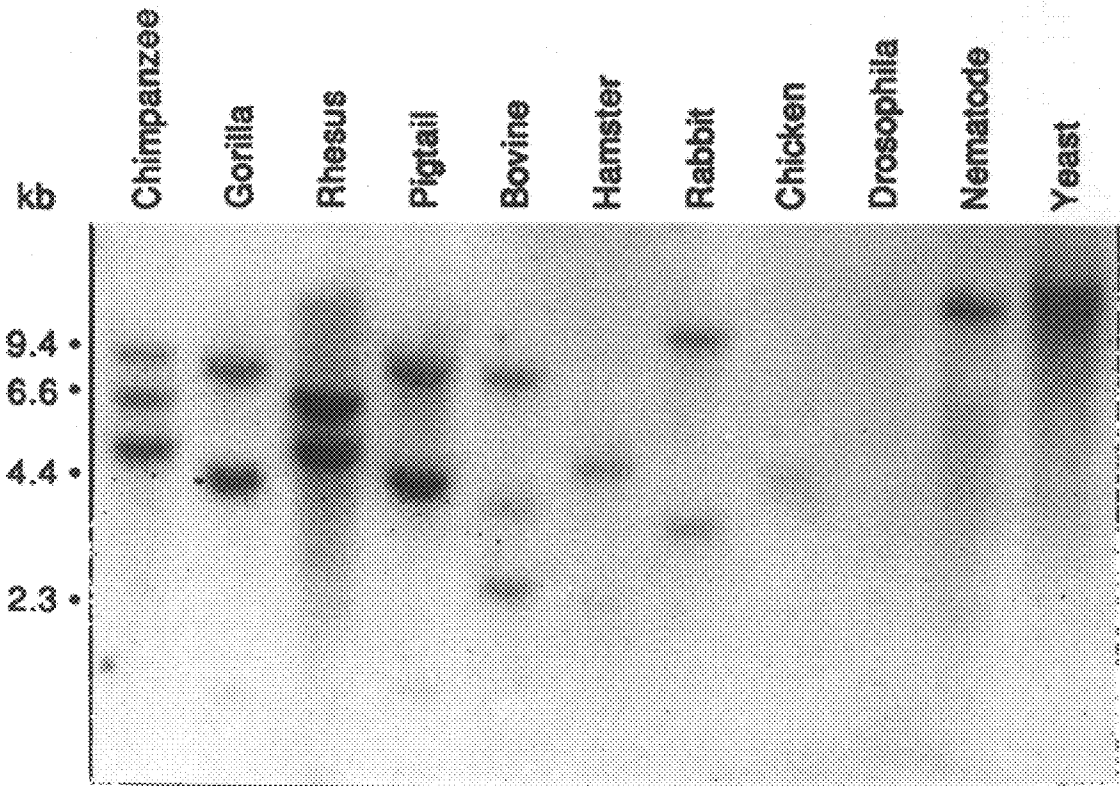


Figure 10