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(54) Title: **FLUORESCENT PROTEINS AND GENES ENCODING THEM**

(57) **Abstract:** Fluorescent proteins comprising the following internal amino acid sequence Gly Tyr Xaa Xaa Xaa GIn Tyr Leu Pro Xaa Pro (SEQ ID NO: 47) 1 5 10 wherein Xaa in position 3 is Ala or GIy, Xaa in position 4 is Phe, His or Tyr, Xaa in position 5 is His, Tyr or Asn, or Xaa in position 10 is Phe or Tyr are disclosed. Such proteins are e.g. isolated or recombinant fluorescent proteins from a Cephalochordata, such as Branchiostoma floridae or Branchiostoma lanceolatum, or isolated mutants or recombinant proteins that have at least 80% amino acid sequence identity with the fluorescent proteins. Isolated and purified structural genes encoding such fluorescent proteins are also disclosed.



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