WHAT IS CLAIMED IS:

1. ~~A method of treating liver cancer, comprising: administering to a subject suffering from liver cancer an amount of~~ Use of an anti-human progastrin (hPG) monoclonal antibody ~~sufficient to provide a therapeutic benefit~~ for the manufacture of a medicament for treating and preventing recurrence of liver cancer wherein said anti-hPG monoclonal antibody has neutralizing activity.

~~2. The method of **claim 1**, wherein the anti-progastrin antibody is a polyclonal antibody.~~

~~3. The method of **claim 1**, wherein the subject is a human and the anti-progastrin antibody is a monoclonal antibody.~~

2. ~~4.~~ The ~~method of~~ use according to **claim ~~3~~ 1**, wherein the anti-progastrin antibody is a humanized monoclonal antibody.

3. ~~5.~~ The ~~method of~~ use according to **claim ~~3~~ 1**, ~~in which~~ wherein the anti-hPG monoclonal antibody is an N-terminal anti-hPG monoclonal antibody.

4. ~~6.~~ The ~~method of~~ use according to **claim ~~5~~ 3**, ~~in which~~ wherein the N-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of DAPLG (SEQ ID NO:28), PDAPLG (SEQ ID NO:29), PRSQQPD (SEQ ID NO:30), WKPRSQQPD (SEQ ID NO:31) and WKPRSQQPDAPLG (SEQ ID NO:32).

5. ~~7.~~ The ~~method of~~ use according to **claim ~~5~~ 3**, ~~in which~~ wherein the N-terminal anti-hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence SWKPRSQQPDAPLG (SEQ ID NO:25).

6. ~~8.~~ The ~~method of~~ use according to **claim ~~5~~ 3**, ~~in which~~ wherein the N-terminal anti-hPG monoclonal antibody comprises ~~three V_H CDRs corresponding in sequence to the V_H CDRs of MAb3, MAb4, MAb15, MAb16 or MAb19 and three V_L CDRs corresponding in sequence to the V_L CDRs of MAb3, Mab4, MAb15, MAb16 or MAb19~~

a. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.3 (SEQ ID NO:1), CDR2 comprises the amino acid sequence of VH CDR 2.3 (SEQ ID NO:2), and CDR3 comprises the amino acid sequence of VH CDR 3.3 (SEQ ID NO:3), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.3 (SEQ ID NO:4), CDR2 comprises the amino acid sequence of VL CDR 2.3 (SEQ ID NO:5), and CDR3 comprises the amino acid sequence of VL CDR 3.3 (SEQ ID NO:6);

b. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.4 (SEQ ID NO:7), CDR2 comprises the amino acid sequence of VH CDR 2.4 (SEQ ID NO:8), and CDR3 comprises the amino acid sequence of VH CDR 3.4 (SEQ ID NO:9), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.4 (SEQ ID NO:10), CDR2 comprises the amino acid sequence of VL CDR 2.4 (SEQ ID NO:5), and CDR3 comprises the amino acid sequence of VL CDR 3.4 (SEQ ID NO:11);

c. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.16 (SEQ ID NO:39), CDR2 comprises the amino acid sequence of VH CDR 2.16 (SEQ ID NO:43), and CDR3 comprises the amino acid sequence of VH CDR 3.16 (SEQ ID NO:47), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.16 (SEQ ID NO:50), CDR2 comprises the amino acid sequence of VL CDR 2.16 (SEQ ID NO:53), and CDR3 comprises the amino acid sequence of VL CDR 3.16 (SEQ ID NO:57); or

d. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.19 (SEQ ID NO:40), CDR2 comprises the amino acid sequence of VH CDR 2.19 (SEQ ID NO:44), and CDR3 comprises the amino acid sequence of VH CDR 3.19 (SEQ ID NO:48), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.19 (SEQ ID NO:51), CDR2 comprises the amino acid sequence of VL CDR 2.19 (SEQ ID NO:54), and CDR3 comprises the amino acid sequence of VL CDR 3.19 (SEQ ID NO:58).

~~9. The method of **claim 5** in which the N-terminal anti-hPG monoclonal antibody comprises CDRs corresponding in sequence to the CDRs of MAb3, MAb4, MAb15, MAb16 or MAb 19.~~

7. ~~10.~~ The ~~method of~~ use according to **claim ~~5~~ 3**, ~~in which~~ wherein the anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of ~~MAb3, MAb4, MAb15, MAb16 and MAb19~~

a. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:12 and a light chain variable domain sequence of SEQ ID NO:13;

b. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:14 and a light chain variable domain sequence of SEQ ID NO:15;

c. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:61 and a light chain variable domain sequence of SEQ ID NO:65; and

d. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:62 and a light chain variable domain sequence of SEQ ID NO:66.

8. ~~11.~~ The ~~method of~~ use according to **claim ~~3~~ 1**, ~~in which~~ wherein the anti-hPG monoclonal antibody is a C-terminal anti-hPG monoclonal antibody.

9. ~~12.~~ The ~~method of~~ use according to **claim ~~11~~ 8**, ~~in which~~ wherein the C-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of FGRR (SEQ ID NO:33), MDFGR (SEQ ID NO:34) and GWMDFGRR (SEQ ID NO:36).

10. ~~13.~~ The ~~method of~~ use according to **claim ~~11~~ 8**, ~~in which~~ wherein the C-terminal anti hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence QGPWLEEEEEAYGWMDFGRRSAEDEN (SEQ ID NO:27).

11. ~~14.~~ The ~~method of~~ use according to **claim ~~11~~ 8**, ~~in which~~ wherein the C-terminal anti-hPG monoclonal antibody comprises ~~three V_H CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13 and three V_L CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13~~

a. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.8 (SEQ ID NO:37), CDR2 comprises the amino acid sequence

of VH CDR 2.8 (SEQ ID NO:41), and CDR3 comprises the amino acid sequence of VH CDR 3.8 (SEQ ID NO:45), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.8 (SEQ ID NO:49), CDR2 comprises the amino acid sequence of VL CDR 2.8 (SEQ ID NO:52), and CDR3 comprises the amino acid sequence of VL CDR 3.8 (SEQ ID NO:55);

b. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.13 (SEQ ID NO:38), CDR2 comprises the amino acid sequence of VH CDR 2.13 (SEQ ID NO:42), and CDR3 comprises the amino acid sequence of VH CDR 3.13 (SEQ ID NO:46), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.13 (SEQ ID NO:50), CDR2 comprises the amino acid sequence of VL CDR 2.13 (SEQ ID NO:53), and CDR3 comprises the amino acid sequence of VL CDR 3.13 (SEQ ID NO:56).

~~15. The method of **claim 11** in which the C-terminal anti hPG monoclonal antibody comprises CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13.~~

12. ~~16.~~ The ~~method of~~ use according to **claim ~~11~~ 8**, ~~in which~~ wherein the C-terminal anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of ~~MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 and MAb13~~

a. a monoclonal antibody comprising a heavy chain variable domain sequence of SEQ ID NO:59 and a light chain variable domain sequence of SEQ ID NO:63; and

b. a monoclonal antibody comprising a heavy chain variable domain sequence of SEQ ID NO:60 and a light chain variable domain sequence of SEQ ID NO:64.

13. ~~17.~~ The method of **claim 1**, in which the anti-progastrin antibody is administered adjunctive to surgical resection, chemotherapy or radiation therapy.

~~18. The method of **claim 1**, in which the anti-progastrin antibody is administered adjunctive to chemotherapy.~~

19. The method of **claim 1**, in which the anti-progastrin antibody is administered adjunctive to radiation therapy.

20. A method of preventing recurrence of liver cancer in a subject, comprising:
administering to a subject who has been treated for liver cancer an amount of an anti-progastrin antibody sufficient to provide a therapeutic benefit.

21. The method of **claim 20**, wherein the anti-progastrin antibody is a polyclonal antibody.

22. The method of **claim 20**, wherein the subject is a human and the anti-progastrin antibody is a monoclonal antibody.

23. The method of **claim 21**, wherein the anti-progastrin antibody is a humanized monoclonal antibody.

24. The method of **claim 22** in which the anti-hPG monoclonal antibody is an N-terminal anti-hPG monoclonal antibody.

25. The method of **claim 24** in which the N-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of DAPLG (SEQ ID NO:28), PDAPLG (SEQ ID NO:29), PRSQQPD (SEQ ID NO:30), WKPRSQQPD (SEQ ID NO:31) and WKPRSQQPDAPLG (SEQ ID NO:32).

26. The method of **claim 24** in which the N-terminal anti-hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence SWKPRSQQPDAPLG (SEQ ID NO:25).

27. The method of **claim 24** in which the N-terminal anti-hPG monoclonal antibody comprises three V_H CDRs corresponding in sequence to the V_H CDRs of MAb3, MAb4, MAb15, MAb16 or MAb19 and three V_L CDRs corresponding in sequence to the V_L CDRs of MAb3, Mab4, MAb15, MAb16 or MAb19.

28. The method of **claim 24** in which the N-terminal anti-hPG monoclonal antibody comprises CDRs corresponding in sequence to the CDRs of MAb3, MAb4, MAb15, MAb16 or MAb 19.

29. The method of **claim 24** in which the anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of MAb3, MAb4, MAb15, MAb16 and MAb19.

30. The method of **claim 22** in which the anti-hPG monoclonal antibody is a C-terminal anti-hPG monoclonal antibody.

31. The method of **claim 30** in which the C-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of FGRR (SEQ ID NO:33), MDFGR (SEQ ID NO:34) and GWMDFGRR (SEQ ID NO:36).

32. The method of **claim 30** in which the C-terminal anti hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence QGPWLEEEEEAYGWMDFGRRSAEDEN (SEQ ID NO:27).

33. The method of **claim 30** in which the C-terminal anti-hPG monoclonal antibody comprises three V_H CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13 and three V_L CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13.

34. The method of **claim 30** in which the C-terminal anti hPG monoclonal antibody comprises CDRs corresponding in sequence to the CDRs of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 or MAb13.

35. The method of **claim 30** in which the C-terminal anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of MAb5, MAb6, MAb7, MAb8, MAb11, MAb12 and MAb13.

14. ~~36.~~ A method of inhibiting proliferation of a liver tumor cell or a liver cancer stem cell *in vitro*, comprising exposing the cell to an amount of an anti-progastrin antibody according to **claim 1** sufficient to inhibit its proliferation.

~~37. The method of **claim 36**, which is carried out *in vitro*.~~

~~38. The method of **claim 36**, which is carried out *in vivo*.~~

15. ~~39. A method of~~ The use according to **claim 1** for the manufacture of a medicament for use in preventing recurrence of liver cancer in a subject comprising:

administering to a subject who has been treated for liver cancer and who has measured serum progastrin level of about 500 pM or greater, an amount of an anti-progastrin effective to lower the subject's serum PG level to about 50 pM or lower.

~~40. The method of **claim 39**, wherein the anti-progastrin antibody is a polyclonal antibody.~~

~~41. The method of **claim 39**, wherein the subject is a human and the anti-progastrin antibody is a monoclonal antibody.~~

~~42. The method of **claim 39**, wherein the anti-progastrin antibody is a humanized monoclonal antibody.~~

16. ~~43. A method of~~ The use according to **claim 1** for monitoring the effectiveness of a liver cancer treatment, comprising:

monitoring *in vitro* the blood progastrin level of a subject who is being treated for liver cancer, as a function of time, where a time-dependent decrease in the subject's serum progastrin level indicates the treatment is effective.

~~44. The method of **claim 43**, wherein the anti-progastrin antibody is a polyclonal antibody.~~

~~45. The method of **claim 43**, wherein the anti-progastrin antibody is a monoclonal antibody.~~

~~46. The method of **claim 43**, wherein the anti-progastrin antibody is a humanized monoclonal antibody.~~

WHAT IS CLAIMED IS:

1. Use of an anti-human progastrin (hPG) monoclonal antibody for the manufacture of a medicament for treating and preventing recurrence of liver cancer wherein said anti-hPG monoclonal antibody has neutralizing activity.

2. The use according to **claim 1**, wherein the anti-progastrin antibody is a humanized monoclonal antibody.

3. The use according to **claim 1**, wherein the anti-hPG monoclonal antibody is an N-terminal anti-hPG monoclonal antibody.

4. The use according to **claim 3**, wherein the N-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of DAPLG (SEQ ID NO:28), PDAPLG (SEQ ID NO:29), PRSQQPD (SEQ ID NO:30), WKPRSQQPD (SEQ ID NO:31) and WKPRSQQPDAPLG (SEQ ID NO:32).

5. The use according to **claim 3**, wherein the N-terminal anti-hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence SWKPRSQQPDAPLG (SEQ ID NO:25).

6. The use according to **claim 3**, wherein the N-terminal anti-hPG monoclonal antibody comprises:

a. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.3 (SEQ ID NO:1), CDR2 comprises the amino acid sequence of VH CDR 2.3 (SEQ ID NO:2), and CDR3 comprises the amino acid sequence of VH CDR 3.3 (SEQ ID NO:3), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.3 (SEQ ID NO:4), CDR2 comprises the amino acid sequence of VL CDR 2.3 (SEQ ID NO:5), and CDR3 comprises the amino acid sequence of VL CDR 3.3 (SEQ ID NO:6);

b. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.4 (SEQ ID NO:7), CDR2 comprises the amino acid sequence

of VH CDR 2.4 (SEQ ID NO:8), and CDR3 comprises the amino acid sequence of VH CDR 3.4 (SEQ ID NO:9), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.4 (SEQ ID NO:10), CDR2 comprises the amino acid sequence of VL CDR 2.4 (SEQ ID NO:5), and CDR3 comprises the amino acid sequence of VL CDR 3.4 (SEQ ID NO:11);

c. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.16 (SEQ ID NO:39), CDR2 comprises the amino acid sequence of VH CDR 2.16 (SEQ ID NO:43), and CDR3 comprises the amino acid sequence of VH CDR 3.16 (SEQ ID NO:47), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.16 (SEQ ID NO:50), CDR2 comprises the amino acid sequence of VL CDR 2.16 (SEQ ID NO:53), and CDR3 comprises the amino acid sequence of VL CDR 3.16 (SEQ ID NO:57); or

d. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.19 (SEQ ID NO:40), CDR2 comprises the amino acid sequence of VH CDR 2.19 (SEQ ID NO:44), and CDR3 comprises the amino acid sequence of VH CDR 3.19 (SEQ ID NO:48), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.19 (SEQ ID NO:51), CDR2 comprises the amino acid sequence of VL CDR 2.19 (SEQ ID NO:54), and CDR3 comprises the amino acid sequence of VL CDR 3.19 (SEQ ID NO:58).

7. The use according to **claim 3**, wherein the anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of:

a. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:12 and a light chain variable domain sequence of SEQ ID NO:13;

b. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:14 and a light chain variable domain sequence of SEQ ID NO:15;

c. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:61 and a light chain variable domain sequence of SEQ ID NO:65; and

d. a monoclonal antibody comprising a heavy variable domain sequence of SEQ ID NO:62 and a light chain variable domain sequence of SEQ ID NO:66.

8. The use according to **claim 1**, wherein the anti-hPG monoclonal antibody is a C-terminal anti-hPG monoclonal antibody.

9. The use according to **claim 8**, wherein the C-terminal anti-hPG monoclonal antibody binds an epitope comprising a sequence selected from the group consisting of FGRR (SEQ ID NO:33), MDFGR (SEQ ID NO:34) and GWMDFGRR (SEQ ID NO:36).

10. The use according to **claim 8**, wherein the C-terminal anti hPG monoclonal antibody is raised against an immunogen comprising a peptide having the sequence QGPWLEEEEEAYGWMDFGRRSAEDEN (SEQ ID NO:27).

11. The use according to **claim 8**, wherein the C-terminal anti-hPG monoclonal antibody comprises

a. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.8 (SEQ ID NO:37), CDR2 comprises the amino acid sequence of VH CDR 2.8 (SEQ ID NO:41), and CDR3 comprises the amino acid sequence of VH CDR 3.8 (SEQ ID NO:45), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.8 (SEQ ID NO:49), CDR2 comprises the amino acid sequence of VL CDR 2.8 (SEQ ID NO:52), and CDR3 comprises the amino acid sequence of VL CDR 3.8 (SEQ ID NO:55);

b. a heavy chain variable region in which CDR1 comprises the amino acid sequence of VH CDR 1.13 (SEQ ID NO:38), CDR2 comprises the amino acid sequence of VH CDR 2.13 (SEQ ID NO:42), and CDR3 comprises the amino acid sequence of VH CDR 3.13 (SEQ ID NO:46), and a light chain variable region in which CDR1 comprises the amino acid sequence of VL CDR 1.13 (SEQ ID NO:50), CDR2 comprises the amino acid sequence of VL CDR 2.13 (SEQ ID NO:53), and CDR3 comprises the amino acid sequence of VL CDR 3.13 (SEQ ID NO:56).

12. The use according to **claim 8**, wherein the C-terminal anti-hPG monoclonal antibody competes for binding hPG with a reference antibody selected from the group consisting of

a. a monoclonal antibody comprising a heavy chain variable domain sequence of SEQ ID NO:59 and a light chain variable domain sequence of SEQ ID NO:63; and

b. a monoclonal antibody comprising a heavy chain variable domain sequence of SEQ ID NO:60 and a light chain variable domain sequence of SEQ ID NO:64.

13. The method of **claim 1**, in which the anti-progastrin antibody is administered adjunctive to surgical resection, chemotherapy or radiation therapy.

14. A method of inhibiting proliferation of a liver tumor cell or a liver cancer stem cell *in vitro*, comprising exposing the cell to an amount of an anti-progastrin antibody according to **claim 1** sufficient to inhibit its proliferation.

15. The use according to **claim 1** for the manufacture of a medicament for use in preventing recurrence of liver cancer in a subject comprising:

administering to a subject who has been treated for liver cancer and who has measured serum progastrin level of about 500 pM or greater, an amount of an anti-progastrin effective to lower the subject's serum PG level to about 50 pM or lower.

16. The use according to **claim 1** for monitoring the effectiveness of a liver cancer treatment, comprising:

monitoring *in vitro* the blood progastrin level of a subject who is being treated for liver cancer, as a function of time, where a time-dependent decrease in the subject's serum progastrin level indicates the treatment is effective.