WHAT IS CLAIMED

1. Use of one or more inhibitors of apoptosis protein ("IAP") antagonists in the manufacture of a medicament ~~A method~~ for treating a human patient having locally advanced squamous cell carcinoma, wherein the one or more IAP antagonists is to be ~~comprising administering~~administered to the human patient~~,~~ in need thereof~~, one or more inhibitors of apoptosis protein ("IAP") antagonists~~, wherein the method comprises:

   (a) a first regimen comprising concomitant administration of the one or more IAP antagonists, a platinum-based chemotherapeutic drug, and radiation; and

   (b) a second regimen comprising administration of the one or more IAP antagonists.

2. The ~~method~~ use of claim 1, wherein the first regimen comprises at least one 21-day cycle in which the one or more IAP antagonists is to be administered for 14 consecutive days followed by seven days in which no IAP antagonist is to be administered.

3. The ~~method~~ use of claim 2, wherein the first regimen comprises three consecutive 21-day cycles.

4. The ~~method~~ use of claim 3, wherein the platinum-based chemotherapeutic drug of the first regimen is to be administered on the first day of each 21-day cycle, ~~.~~

~~5. The method of claim 3, wherein the platinum-based chemotherapeutic drug of the first regimen is administered~~or on the second day of each 21-day cycle.

~~6~~5. The ~~method~~ use of any one of claims 3-~~5~~4, wherein radiation is to be administered on the first five consecutive days of each 21-day cycle.

~~7~~6. The ~~method~~ use of any one of claims 1-~~6~~5, wherein the second regimen comprises at least one 21-day cycle in which at least one IAP antagonist is to be administered for 14

consecutive days followed by seven days in which no IAP antagonist is to be administered.

~~8~~7. The ~~method~~ use of claim ~~7~~6, wherein the second regimen comprises two or three consecutive 21-day cycles.

~~9. The method of claim 7, wherein the second regimen comprises three consecutive 21-day cycles.~~

~~10~~8. The ~~method~~ use of any one of claims 1-~~9~~7, wherein no platinum-based chemotherapeutic drug or radiation is to be administered in the second regimen.

~~11~~9. The ~~method~~ use of any one of claims 1-~~10~~8, wherein the one or more IAP antagonists is selected from the group consisting of Compound A, or pharmaceutically acceptable salt thereof, LCL-161, or pharmaceutically acceptable salt thereof, CUDC 427/GDC 0917, or pharmaceutically acceptable salt thereof, birinapant, or pharmaceutically acceptable salt thereof, AZD5582, or pharmaceutically acceptable salt thereof, APG-1387, or pharmaceutically acceptable salt thereof, ASTX660, or pharmaceutically acceptable salt thereof, SBP-0636457, JP1201, or pharmaceutically acceptable salt thereof, or combinations thereof.

~~12~~10. The ~~method~~ use of claim 1-~~11~~9, wherein ~~the human patient is administered~~ a first IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof, and a second IAP antagonist selected from the group consisting of birinapant, or pharmaceutically acceptable salt thereof, AZD5582, or pharmaceutically acceptable salt thereof, and APG-1387, or pharmaceutically acceptable salt thereof, and combinations thereof,~~.~~ is to be administered to the human patient,

~~13. The method of claim 12,~~ wherein ~~the human patient is administered~~ a third IAP antagonist selected from the group consisting of ASTX660, or pharmaceutically acceptable salt thereof, SBP-0636457, JP1201, or pharmaceutically acceptable salt thereof, and combinations thereof, is to be optionally administered to the human patient.

~~14~~11. The ~~method~~ use of any one of claims 1-~~13~~10, wherein ~~the human patient is administered~~ at least one IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof, preferably~~.~~

~~15. The method of any one of claims 1-14, wherein the human patient is administered at least one IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof,~~ in an amount corresponding to about 100 mg to about 500 mg of Compound A as its free base, ~~daily~~ in particular~~.~~

~~16. The method of claim 15, wherein the human patient is administered~~ about 100 mg, about 150 mg, or preferably about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimen~~s~~t, is to be administered to the human patient daily.

~~17. The method of claim 15, wherein the human patient is administered about 150 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimens, daily.~~

~~18. The method of claim 15, wherein the human patient is administered about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimens, daily.~~

~~19~~12. The ~~method~~ use of any one of claims 1-~~18~~11, wherein the human patient has a positive smoking history, is a heavy consumer of alcohol, and/or has HPV-negative OPC.

~~20. The method of claim 19, wherein the human patient has a positive smoking history.~~

~~21. The method of claim 19, wherein the human patient is a heavy consumer of alcohol.~~

~~22. The method of claim 19, wherein the human patient has HPV-negative OPC.~~

2313. The ~~method~~ use of any one of claims 1-2212, wherein at least one IAP antagonist~~s~~ is Compound A ~~is~~ in free base form.

2414. The ~~method~~ use of any one of claims 1-2212, wherein at least one IAP antagonist~~s~~ is Compound A ~~is~~ as a pharmaceutically acceptable salt, preferably~~.~~

~~25. The method of claim 24, wherein Compound A is a pharmaceutically acceptable salt form~~ selected from the group consisting of acetate, hydrochloride, citrate, lactate, fumarate, succinate, phosphate, maleate, sulfate, tartrate, benzoate, mesylate, malate, hydrobromide, tosylate, nitrate, N-acetylglycine, ascorbate, butanate, ethane-1,2-disulfonate, gentisate, glucoronate, glutarate, glycolate, isethionate, ketoglutarate, malonate, napadisylate, napsylate, nicotinate, pyroglutamate, pyruvate, sebacate, and succinate, more preferably~~.~~

~~26. The method of claim 25, wherein the pharmaceutically acceptable form is~~ selected from the group consisting of sulfate, tosylate, gentisate, hydrochloride, napadisylate, napsylate, laurylsulfate, xinafoate, and pamoate.

2715. The ~~method~~ use of any one of claims 1-2614, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is to be administered orally.

2816. The ~~method~~ use of any one of claims 1-2715, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is to be administered as a solid dosage form, preferably~~.~~

~~29. The method of claim 28, wherein the solid dosage form is~~ a capsule or tablet.

3017. The ~~method~~ use of any one of claims 1-2715, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is to be administered as a solution, preferably~~.~~

~~31. The method of claim 30, wherein the solution is~~ an aqueous solution.

~~32~~18. The ~~method~~ use of claim ~~30 or 31~~17, wherein the solution of Compound A, or pharmaceutically acceptable salt thereof, is to be administered orally via a nasogastric tube, percutaneous endoscopic gastrostomy tube, or percutaneous endoscopic jejunostomy tube, and/or~~.~~

~~33. The method of claim 30 or 31,~~ wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of between about 10 mg/mL to about 50 mg/mL, preferably about 20 mg/mL, based on Compound A as its free base.

~~34. The method of claim 33, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of about 20 mg/mL based on Compound A, as its free base.~~

~~35~~19. The ~~method~~ use of any one of claims 1-~~34~~18, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is to be administered as one dose one time per day, or~~.~~

~~36. The method of any one of claims 1-34, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that~~ is divided into multiple doses that are to be administered two, three, or four times per day.

~~37~~20. The ~~method~~ use of any one of claims 1-~~36~~19, wherein the platinum-based chemotherapeutic drug of the first regimen is to be intravenously administered.

~~38~~21. The ~~method~~ use of any one of claims 1-~~37~~20, wherein the platinum-based chemotherapeutic drug of the first regimen is one or more selected from the group consisting of cisplatin, carboplatin, oxaliplatin, and nedaplatin.

~~39~~22. The ~~method~~ use of claim ~~38~~21, wherein the platinum-based chemotherapeutic drug of the first regimen is cisplatin~~.~~.

~~40. The method of claim 39,~~ wherein the cisplatin is to be preferably~~-~~ administered at a dose between about 10 mg/m^2 weekly and 150 mg/m^2 weekly, more preferably~~.~~

~~41. The method of claim 39, wherein the cisplatin is administered~~ at a dose between about 40 mg/m^2 weekly and about 100 mg/m^2 weekly, in particular~~.~~

~~42. The method of claim 39, wherein the cisplatin is administered~~ at a dose of about 100 mg/m^2 weekly.

23. The use of claim 22, wherein the cisplatin is to be administered at a dose of about 50 mg/m^2 or more to about 100 mg/m^2 or less on Day 2 of a 21-day cycle.

~~43~~24. The ~~method~~ use of claim ~~38~~21, wherein the platinum-based chemotherapeutic drug of the first regimen is carboplatin, ~~.~~

~~44. The method of claim 43,~~ wherein the carboplatin is to be preferably administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.0 to about 5.5 mg*min/mL, more preferably~~.~~

~~45. The method of claim 43, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of~~ about 1.5 to about 2.0 mg*min/mL weekly, or~~.~~

~~46. The method of claim 43, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of~~ about 4.5 to about 5.0 every three weeks.

~~47~~25. The ~~method~~ use of any one of claims 1-~~46~~24, wherein the human patient is provided a suitable amount of radiation up to a maximum of 70 grays in the first regimen, preferably~~.~~

~~48. The method of claim 47, wherein the human patient is provided a suitable amount of radiation~~ up to a maximum of 56 grays in the first regimen.

~~49~~26. The ~~method~~ use of any one of claims 1-~~48~~25, wherein the radiation is intensity-modulated radiation therapy.

~~50~~27. The ~~method~~ use of any one of claims 1-~~49~~26, wherein at least one IAP antagonist is to be administered to the human patient in the first regimen after the human patient has fasted for at least two hours, and/or ~~.~~

~~51. The method of any one of claims 1-50,~~ wherein the human patient fasts for at least one hour after at least one IAP antagonist is to be administered to the human patient in the first regimen.

~~52~~28. The ~~method~~ use of any one of claims 1-~~51~~27, wherein at least one IAP antagonist is to be administered to the human patient in the second regimen after the human patient has fasted for at least two hours, and/or~~.~~

~~53. The method of any one of claims 1-52,~~ wherein the human patient fasts for at least one hour after at least one IAP antagonist is to be administered to the human patient in the second regimen.

~~54~~29. The ~~method~~ use of any one of claims 1-~~53~~28, wherein the locally advanced squamous cell carcinoma is of the head and neck region.

~~55~~30. The ~~method~~ use of claim ~~54~~29, wherein the locally advanced squamous cell carcinoma of the head and neck region is squamous cell carcinoma of the head and neck region of

oropharynx, larynx, hypopharynx, or oral cavity and more specifically selected from the group consisting of oropharynx, larynx, and hypopharynx.

5631. The ~~method~~ use of claim 5530, wherein the locally advanced squamous cell carcinoma of the head and neck region is oropharyngeal cancer.~~.~~

~~57. The method of claim 55 or 56,~~ wherein the oropharyngeal cancer is unrelated to human papillomavirus (HPV) infection, or~~.~~

~~58. The method of claim 55 or 56,~~ wherein the oropharyngeal cancer is related to ~~human papillomavirus (~~HPV~~)~~ infection.

5932. The ~~method~~ use of any one of claims 1-3158, wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 1998 staging system or wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 2010 or 2018 staging system.

~~60. A method for treating a human patient having locally advanced squamous cell carcinoma comprising administering to the human patient, in need thereof, one or more IAP antagonists, wherein the method comprises:~~

~~1. a first regimen comprising a 21-day cycle that comprises administering one or more IAP antagonists on Days 1-14 of the cycle, a platinum-based chemotherapeutic drug on Day 2 of the cycle, and radiation on Days 1-5, 8-12, and 15-19 of the cycle; and~~

~~2. a second regimen comprising a 21-day cycle that comprises administering one or more IAP antagonists on Days 1-14 of the cycle.~~

~~61. The method of claim 60, wherein the first regimen comprises two consecutive 21-day cycles.~~

~~62. The method of claim 60, wherein the second regimen comprises three consecutive 21-day cycles.~~

~~63. The method of any one of claims 60-62, wherein no platinum-based chemotherapeutic drug or radiation is administered in the second regimen.~~

~~64. The method of any one of claims 60-63, wherein the one or more IAP antagonists is selected from the group consisting of Compound A, or pharmaceutically acceptable salt thereof, LCL-161, or pharmaceutically acceptable salt thereof, CUDC-427/GDC-0917, or pharmaceutically acceptable salt thereof, birinapant, or pharmaceutically acceptable salt thereof, AZD5582, or pharmaceutically acceptable salt thereof, APG-1387, or pharmaceutically acceptable salt thereof, ASTX660, or pharmaceutically acceptable salt thereof, SBP-0636457, JP1201, or pharmaceutically acceptable salt thereof, or combinations thereof.~~

~~65. The method of any one of claims 60-64, wherein the human patient is administered a first IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof, and a second IAP antagonist selected from the group consisting of birinapant, or pharmaceutically acceptable salt thereof, AZD5582, or pharmaceutically acceptable salt thereof, and APG-1387, or pharmaceutically acceptable salt thereof, and combinations thereof.~~

~~66. The method of claim 65, wherein the human patient is administered a third IAP antagonist selected from the group consisting of ASTX660, or pharmaceutically acceptable salt thereof, SBP-0636457, JP1201, or pharmaceutically acceptable salt thereof, and combinations thereof.~~

~~67. The method of any one of claims 60-66, wherein the human patient is administered at least one IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof.~~

~~68. The method of any one of claims 60-67, wherein the human patient is administered at least one IAP antagonist that is Compound A, or pharmaceutically acceptable salt thereof,~~

~~in an amount corresponding to about 100 mg to about 500 mg of Compound A as its free base, daily.~~

~~69. The method of claim 68, wherein the human patient is administered about 100 mg of Compound A, or pharmaceutically acceptable salt, based on its free base in both the first and second regimens.~~

~~70. The method of claim 68, wherein the human patient is administered about 150 mg of Compound A, or pharmaceutically acceptable salt, based on its free base in both the first and second regimens.~~

~~71. The method of claim 68, wherein the human patient is administered about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimens.~~

~~72. The method of any one of claims 60-71, wherein the human patient has a positive smoking history, is a heavy consumer of alcohol, and/or has HPV-negative OPC.~~

~~73. The method of claim 72, wherein the human patient has a positive smoking history.~~

~~74. The method of claim 72, wherein the human patient is a heavy consumer of alcohol.~~

~~75. The method of claim 72, wherein the human patient has HPV-negative OPC.~~

~~76. The method of any one of claims 60-75, wherein at least one IAP antagonists is Compound A is in free base form.~~

~~77. The method of any one of claims 60-75, wherein at least one IAP antagonists is Compound A is a pharmaceutically acceptable salt.~~

78. The method of claim 77, wherein Compound A is a pharmaceutically acceptable salt form selected from the group consisting of acetate, hydrochloride, citrate, lactate, fumarate, succinate, phosphate, maleate, sulfate, tartrate, benzoate, mesylate, malate, hydrobromide, tosylate, nitrate, N-acetylglycine, ascorbate, butanate, ethane-1,2-disulfonate, gentisate, glucoronate, glutarate, glycolate, isethionate, ketoglutarate, malonate, napadisylate, napsylate, nicotinate, pyroglutamate, pyruvate, sebacate, and succinate.

79. The method of claim 78, wherein the pharmaceutically acceptable form is selected from the group consisting of sulfate, tosylate, gentisate, hydrochloride, napadisylate, napsylate, laurylsulfate, xinafoate, and pamoate.

80. The method of any one of claims 60-79, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is administered orally.

81. The method of any one of claims 60-80, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is administered as a solid dosage form.

82. The method of claim 81, wherein the solid dosage form is a capsule or tablet.

83. The method of any one of claims 60-80, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is administered as a solution.

84. The method of claim 83, wherein the solution is an aqueous solution.

85. The method of claim 83 or 84, wherein the solution of Compound A, or pharmaceutically acceptable salt thereof, is administered orally via a nasogastric tube, percutaneous endoscopic gastrostomy tube, or percutaneous endoscopic jejunostomy tube.

86. The method of claim 83 or 84, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of between about 10 mg/mL to about 50 mg/mL based on Compound A as its free base.

87. The method of claim 86, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of about 20 mg/mL based on Compound A, as its free base.

88. The method of any one of claims 60-87, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is administered as one dose one time per day.

89. The method of any one of claims 60-87, wherein at least one IAP antagonist is Compound A, or pharmaceutically acceptable salt thereof, that is divided into multiple doses that are administered one, two, three, or four times per day.

90. The method of any one of claims 60-89, wherein the platinum-based chemotherapeutic drug of the first regimen is intravenously administered.

91. The method of claims 60-90, wherein the platinum-based chemotherapeutic drug of the first regimen is one or more selected from the group consisting of cisplatin, carboplatin, oxaliplatin, and nedaplatin.

92. The method of claim 91, wherein the platinum-based chemotherapeutic drug of the first regimen is cisplatin.

93. The method of claim 92, wherein the cisplatin is administered at a dose between about 10 mg/m^2 weekly and 150 mg/m^2 weekly.

94. The method of claim 93, wherein the cisplatin is administered at a dose between about 40 mg/m^2 weekly and about 100 mg/m^2 weekly.

95. The method of claim 94, wherein the cisplatin is administered at a dose of about 100 mg/m^2 weekly.

96. The method of claim 91, wherein the platinum-based chemotherapeutic drug of the first regimen is carboplatin.

97. The method of claim 96, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.0 to about 5.5 mg*min/mL.

98. The method of claim 96, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.5 to about 2.0 mg*min/mL weekly.

99. The method of claim 96, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 4.5 to about 5.0 every three weeks.

100. The method of any one of claims 60-99, wherein the human patient is provided a suitable amount of radiation up to a maximum of 70 grays in the first regimen.

101. The method of claim 100, wherein the human patient is provided a suitable amount of radiation up to a maximum of 56 grays in the first regimen.

102. The method of any one of claims 1-101, wherein the radiation is intensity-modulated radiation therapy.

103. The method of any one of claims 1-102, wherein at least one IAP antagonist is administered to the human patient in the first regimen after the human patient has fasted for at least two hours.

~~104. The method of any one of claims 1-103, wherein the human patient fasts for at least one hour after at least one IAP antagonist is administered to the human patient in the first regimen.~~

~~105. The method of any one of claims 1-104, wherein at least one IAP antagonist is administered to the human patient in the second regimen after the human patient has fasted for at least two hours.~~

~~106. The method of any one of claims 1-105, wherein the human patient fasts for at least one hour after at least one IAP antagonist is administered to the human patient in the second regimen.~~

~~107. The method of any one of claims 1-106, wherein the locally advanced squamous cell carcinoma is of the head and neck region.~~

~~108. The method of claim 107, wherein the locally advanced squamous cell carcinoma of the head and neck region is squamous cell carcinoma of the head and neck region of oropharynx, larynx, hypopharynx, or oral cavity and more specifically selected from the group consisting of oropharynx, larynx, and hypopharynx.~~

~~109. The method of claim 108, wherein the locally advanced squamous cell carcinoma of the head and neck region is oropharyngeal cancer.~~

~~110. The method of claim 108 or 109, wherein the oropharyngeal cancer is unrelated to human papillomavirus (HPV) infection.~~

~~111. The method of claim 108 or 109, wherein the oropharyngeal cancer is related to human papillomavirus (HPV) infection.~~

~~112. The method of any one of claims 1-111, wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint~~

~~Committee on Cancer 1998 staging system or wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 2010 or 2018 staging system.~~

~~113~~33. Use of Compound A or pharmaceutically acceptable salt thereof in the manufacture of a medicament ~~A method~~ for treating a human patient having locally advanced squamous cell carcinoma, wherein the Compound A, or pharmaceutically acceptable salt thereof, is to be ~~comprising administering~~administered to the human patient~~,~~ in need thereof, ~~Compound A, or pharmaceutically acceptable salt thereof,~~ wherein the method comprises:

1. a first regimen comprising three 21-day cycles that comprise administering Compound A, or pharmaceutically acceptable salt thereof, on Days 1-14 of each cycle, cisplatin on Day 2 of each cycle, and radiation on Days 1-5, 8-12, and 15-19 of each cycle, wherein cisplatin may be replaced by carboplatin after the first cycle; and
2. a second regimen comprising three 21-day cycles that comprise administering Compound A, or pharmaceutically acceptable salt thereof, on Days 1-14 of each cycle.

~~114~~34. The ~~method~~ use of claim ~~113~~33, wherein ~~the human patient is administered~~ Compound A, or pharmaceutically acceptable salt thereof, in an amount corresponding to about 100 mg to about 500 mg of Compound A as its free base, ~~daily~~ in particular ~~.~~

~~115. The method of claim 114, wherein the human patient is administered~~ about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimens, is to be administered to the human patient daily.

35. The use of claim 33 or 34, wherein the cisplatin is to be administered at a dose of about 50 mg/m^2 or more to about 100 mg/m^2 or less on Day 2 of a 21-day cycle.

~~116. The method of any one of claims 113-115, wherein the human patient has a positive smoking history and/or is a heavy consumer of alcohol.~~

~~117. The method of claim 116, wherein the human patient has a positive smoking history.~~

~~118. The method claim 117, wherein the human patient is a heavy consumer of alcohol.~~

~~119. The method of any one of claims 113-118, wherein the Compound A is in free base form.~~

~~120. The method of any one of claims 113-118, wherein the Compound A is a pharmaceutically acceptable salt.~~

~~121. The method of claim 120, wherein Compound A is a pharmaceutically acceptable salt form selected from the group consisting of acetate, hydrochloride, citrate, lactate, fumarate, succinate, phosphate, maleate, sulfate, tartrate, benzoate, mesylate, malate, hydrobromide, tosylate, nitrate, N-acetylglycine, ascorbate, butanate, ethane-1,2-disulfonate, gentisate, glucoronate, glutarate, glycolate, isethionate, ketoglutarate, malonate, napadisylate, napsylate, nicotinate, pyroglutamate, pyruvate, sebacate, and succinate.~~

~~122. The method of claim 121, wherein the pharmaceutically acceptable form is selected from the group consisting of sulfate, tosylate, gentisate, hydrochloride, napadisylate, napsylate, laurylsulfate, xinafoate, and pamoate.~~

~~123. The method of any one of claims 113-122, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered orally.~~

~~124. The method of any one of claims 113-123, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered as a solid dosage form.~~

~~125. The method of claim 124, wherein the solid dosage form is a capsule or tablet.~~

~~126. The method of any one of claims 113-123, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered as a solution.~~

~~127. The method of claim 127, wherein the solution is an aqueous solution.~~

~~128. The method of claim 126 or 127, wherein the solution of Compound A, or pharmaceutically acceptable salt thereof, is administered orally via a nasogastric tube, percutaneous endoscopic gastrostomy tube, or percutaneous endoscopic jejunostomy tube.~~

~~129. The method of any one of claims 126-128, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of between about 10 mg/mL to about 50 mg/mL based on Compound A as its free base.~~

~~130. The method of claim 129, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of about 20 mg/mL based on Compound A, as its free base.~~

~~131. The method of any one of claims 113-130, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered as one dose one time per day.~~

~~132. The method of any one of claims 113-130, wherein the Compound A, or pharmaceutically acceptable salt thereof, is divided into multiple doses that are administered two, three, or four times per day.~~

~~133. The method of any one of claims 113-132, wherein the human patient is administered carboplatin in the second and/or third 21 day cycle of the first regimen rather than cisplatin if the human patient exhibits a glomerular filtration rate between 30-59 ml/min/1.73m^2 body surface area after the first cycle.~~

~~134. The method of any one of claims 113-133, the cisplatin or carboplatin is intravenously administered.~~

135. The method of any one of claims 113-134, wherein the cisplatin is administered at a dose between about 10 mg/m^2 weekly and 150 mg/m^2 weekly.

136. The method of claim 135, wherein the cisplatin is administered at a dose between about 40 mg/m^2 weekly and about 100 mg/m^2 weekly.

137. The method of claim 136, wherein the cisplatin is administered at a dose of about 100 mg/m^2 weekly.

138. The method of any one of claims 113-134, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.0 to about 5.5 mg*min/mL.

139. The method of claim 139, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.5 to about 2.0 mg*min/mL weekly.

140. The method of claim 139, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 4.5 to about 5.0 every three weeks.

141. The method of any one of claims 113-140, wherein the human patient is provided a suitable amount of radiation up to a maximum of 70 grays in the first regimen.

142. The method of any one of claims 113-141, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the first regimen after the patient has fasted for at least two hours.

143. The method of any one of claims 113-142, wherein the human patient fasts for at least one hour after the Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the first regimen.

~~144. The method of any one of claims 113-143, wherein the Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the second regimen after the patient has fasted for at least two hours.~~

~~145. The method of any one of claims 113-144, wherein the human patient fasts for at least one hour after the Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the second regimen.~~

~~146~~36. The ~~method~~ use of any one of claims ~~113~~33-~~145~~35, wherein the locally advanced squamous cell carcinoma is of the head and neck region.

~~147~~37. The ~~method~~ use of claim ~~146~~36, wherein the locally advanced squamous cell carcinoma of the head and neck region is squamous cell carcinoma of the head and neck region of oropharynx, larynx, hypopharynx, or oral cavity and more specifically selected from the group consisting of oropharynx, larynx, and hypopharynx.

~~148~~38. The ~~method~~ use of claim ~~147~~37, wherein the locally advanced squamous cell carcinoma of the head and neck region is oropharyngeal cancer~~,~~.

~~149. The method of claim 146 or 147,~~ wherein the oropharyngeal cancer is unrelated to human papillomavirus (HPV) infection, or ~~.~~

~~150. The method of claim 146 or 147,~~ wherein the oropharyngeal cancer is related to ~~human papillomavirus (~~HPV~~)~~ infection.

~~151~~39. The ~~method~~ use of any one of claims ~~113~~33-~~150~~38, wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 1998 staging system or wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 2010 or 2018 staging system.

40. The use of any one of claims 33-39, wherein no platinum-based chemotherapeutic drug or radiation is to be administered in the second regimen.

~~152. A method for treating a human patient having locally advanced squamous cell carcinoma comprising administering to the human patient, in need thereof, Compound A, or pharmaceutically acceptable salt thereof, in an amount corresponding to about 100 mg to about 500 mg of Compound A as its free base, daily, wherein the human patient in need thereof has a positive smoking history and/or is a heavy consumer of alcohol.~~

~~153. The method of claim 152, wherein the human patient is administered about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base.~~

~~154. The method of claim 152 or 153, wherein the human patient has a positive smoking history.~~

~~155. The method of any one of claims 152-154, wherein the human patient is a heavy consumer of alcohol.~~

~~156. The method of any one of claims 152-155, wherein Compound A is in free base form.~~

~~157. The method of any one of claims 152-155, wherein Compound A is a pharmaceutically acceptable salt.~~

~~158. The method of claim 157, wherein Compound A is a pharmaceutically acceptable salt form selected from the group consisting of acetate, hydrochloride, citrate, lactate, fumarate, succinate, phosphate, maleate, sulfate, tartrate, benzoate, mesylate, malate, hydrobromide, tosylate, nitrate, N-acetylglycine, ascorbate, butanate, ethane-1,2-disulfonate, gentisate, glucoronate, glutarate, glycolate, isethionate, ketoglutarate, malonate, napadisylate, napsylate, nicotinate, pyroglutamate, pyruvate, sebacate, and succinate.~~

~~159. The method of claim 158, wherein the pharmaceutically acceptable form is selected from the group consisting of sulfate, tosylate, gentisate, hydrochloride, napadisylate, napsylate, laurylsulfate, xinafoate, and pamoate.~~

~~160. The method of any one of claims 152-159, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered orally.~~

~~161. The method of any one of claims 152-160, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as a solid dosage form.~~

~~162. The method of claim 161, wherein the solid dosage form is a capsule or tablet.~~

~~163. The method of any one of claims 152-160, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as a solution.~~

~~164. The method of claim 163, wherein the solution is an aqueous solution.~~

~~165. The method of claim 163 or 164, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered orally via a nasogastric tube, percutaneous endoscopic gastrostomy tube, or percutaneous endoscopic jejunostomy tube.~~

~~166. The method of claim 163 or 164, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of between about 10 mg/mL to about 50 mg/mL based on Compound A as its free base.~~

~~167. The method of claim 166, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of about 20 mg/mL based on Compound A, as its free base.~~

~~168. The method of any one of claims 152-167, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as one dose one time per day.~~

~~169. The method of any one of claims 152-167, wherein Compound A, or pharmaceutically acceptable salt thereof, is divided into multiple doses that are administered two, three, or four times per day.~~

~~170. The method of any one of claims 152-169, wherein the human patient is also administered a platinum-based chemotherapeutic drug.~~

~~171. The method of claim 170, wherein the platinum-based chemotherapeutic drug is intravenously administered.~~

~~172. The method of claim 170 or 171, wherein the platinum-based chemotherapeutic drug is one or more selected from the group consisting of cisplatin, carboplatin, oxaliplatin, and nedaplatin.~~

~~173. The method of claim 172, wherein the platinum-based chemotherapeutic drug is cisplatin.~~

~~174. The method of claim 173, wherein the cisplatin is administered at a dose between about 10 mg/m^2 weekly and 150 mg/m^2 weekly.~~

~~175. The method of claim 174, wherein the cisplatin is administered at a dose between about 40 mg/m^2 weekly and about 100 mg/m^2 weekly.~~

~~176. The method of claim 175, wherein the cisplatin is administered at a dose of about 40 mg/m^2 or about 100 mg/m^2 weekly.~~

~~177. The method of claim 172, wherein the platinum-based chemotherapeutic drug is carboplatin.~~

~~178. The method of claim 177, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.0 to about 5.5 mg*min/mL.~~

~~179. The method of claim 177, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.5 to about 2.0 mg*min/mL weekly.~~

~~180. The method of claim 177, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 4.5 to about 5.0 every three weeks.~~

~~181. The method of any one of claims 152-180, wherein the human patient is also administered radiation.~~

~~182. The method of claim 181, wherein the human patient is provided a suitable amount of radiation up to a maximum of 70 or 72 grays.~~

~~183. The method of any one of claims 152-182, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient after the human patient has fasted for at least one hour or at least two hours.~~

~~184. The method of any one of claims 152-183, wherein the human patient fasts for at least one hour or at least two hours after Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient.~~

~~185. The method of any one of claims 157-184, wherein the human patient receives Compound A, or pharmaceutically acceptable salt thereof, for the first 14 consecutive days of a 21 day cycle.~~

~~186. The method of claim 185, wherein the human patient receives the platinum-based chemotherapeutic drug on the second day of the 21 day cycle.~~

~~187. The method of claim 185, wherein the human patient receives Compound A, or pharmaceutically acceptable salt thereof, for up to three consecutive 21 day cycles.~~

~~188. The method of claim 185, wherein the human patient receives cisplatin on day 2 of the first 21 day cycle and carboplatin on day 2 of the second and/or third 21 day cycle.~~

~~189. The method of any one of claims 152-188, wherein the human patient receives five fractions of radiation each week for 7 to 9 weeks.~~

~~190. The method of any one of claim 189, wherein the human patient receives Compound A, or pharmaceutically acceptable salt thereof, for 14 consecutive days after the last radiation dose.~~

~~191. A method for treating a human patient having locally advanced squamous cell carcinoma comprising administering to the human patient, in need thereof, Compound A, or pharmaceutically acceptable salt thereof, in an amount corresponding to about 100 mg to about 500 mg of Compound A as its free base, daily, wherein the human patient in need thereof has a positive smoking history and/or is a heavy consumer of alcohol, wherein the method comprises:~~

~~(a) a first regimen comprising concomitant administration of Compound A, or pharmaceutically acceptable salt thereof, a platinum-based chemotherapeutic drug, and radiation;~~

~~(b) a second regimen comprising administration Compound A, or pharmaceutically acceptable salt thereof.~~

~~192. The method of claim 191, wherein the first regimen comprises at least one 21-day cycle in which the Compound A, or pharmaceutically acceptable salt thereof, and platinum-based chemotherapeutic drug are administered for 14 consecutive days followed by seven days in which no Compound A, or pharmaceutically acceptable salt thereof, or platinum-based chemotherapeutic drug are administered.~~

~~193. The method of claim 192, wherein the first regimen comprises three consecutive 21-day cycles.~~

194. The method of any one of claims 191-193, wherein the second regimen comprises at least one 21-day cycle in which the Compound A, or pharmaceutically acceptable salt thereof, is administered for 14 consecutive days followed by seven days in which no Compound A, or pharmaceutically acceptable salt thereof, is administered.

195. The method of claim 194, wherein the second regimen comprises two consecutive 21-day cycles.

196. The method of any one of claims 191-195, wherein no platinum-based chemotherapeutic drug or radiation is administered in the second regimen.

197. The method of any one of claims 191-196, wherein the human patient is administered about 200 mg of Compound A, or pharmaceutically acceptable salt, based on its free base, in both the first and second regimens.

198. The method of any one of claims 191-197, wherein the human patient has a positive smoking history.

199. The method of any one of claims 191-198, wherein the human patient is a heavy consumer of alcohol.

200. The method of any one of claims 191-199, wherein Compound A is in free base form.

201. The method of any one of claims 191-199, wherein Compound A is a pharmaceutically acceptable salt.

202. The method of claim 201, wherein Compound A is a pharmaceutically acceptable salt form selected from the group consisting of acetate, hydrochloride, citrate, lactate, fumarate, succinate, phosphate, maleate, sulfate, tartrate, benzoate, mesylate, malate, hydrobromide, tosylate, nitrate, N-acetylglycine, ascorbate, butanate, ethane-1,2-disulfonate, gentisate, glucoronate, glutarate, glycolate, isethionate, ketoglutarate,

malonate, napadisylate, napsylate, nicotinate, pyroglutamate, pyruvate, sebacate, and succinate.

203. The method of claim 202, wherein the pharmaceutically acceptable form is selected from the group consisting of sulfate, tosylate, gentisate, hydrochloride, napadisylate, napsylate, laurylsulfate, xinafoate, and pamoate.

204. The method of any one of claims 191-203, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered orally.

205. The method of any one of claims 191-204, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as a solid dosage form.

206. The method of claim 205, wherein the solid dosage form is a capsule or tablet.

207. The method of any one of claims 191-204, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as a solution.

208. The method of claim 207, wherein the solution is an aqueous solution.

209. The method of claim 207 or 208, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered orally via a nasogastric tube, percutaneous endoscopic gastrostomy tube, or percutaneous endoscopic jejunostomy tube.

210. The method of claim 207 or 208, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of between about 10 mg/mL to about 50 mg/mL based on Compound A as its free base.

211. The method of claim 210, wherein the solution comprises Compound A, or pharmaceutically acceptable salt thereof, at a concentration of about 20 mg/mL based on Compound A, as its free base.

~~212. The method of any one of claims 191-211, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered as one dose one time per day.~~

~~213. The method of any one of claims 191-211, wherein Compound A, or pharmaceutically acceptable salt thereof, is divided into multiple doses that are administered two, three, or four times per day.~~

~~214. The method of any one of claims 191-213, wherein the platinum-based chemotherapeutic drug of the first regimen is intravenously administered.~~

~~215. The method of any one of claims 191-214, wherein the platinum-based chemotherapeutic drug of the first regimen is one or more selected from the group consisting of cisplatin, carboplatin, oxaliplatin, and nedaplatin.~~

~~216. The method of claim 215, wherein the platinum-based chemotherapeutic drug of the first regimen is cisplatin.~~

~~217. The method of claim 216, wherein the cisplatin is administered at a dose between about 10 mg/m^2 weekly and about 150 mg/m^2 weekly.~~

~~218. The method of claim 216, wherein the cisplatin is administered at a dose between about 40 mg/m^2 weekly and about 100 mg/m^2 weekly.~~

~~219. The method of claim 216, wherein the cisplatin is administered at a dose of about 40 mg/m^2 or about 100 mg/m^2 weekly.~~

~~220. The method of claim 215, wherein the platinum-based chemotherapeutic drug of the first regimen is carboplatin.~~

~~221. The method of claim 220, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.0 to about 5.5 mg*min/mL.~~

~~222. The method of claim 221, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 1.5 to about 2.0 mg*min/mL weekly.~~

~~223. The method of claim 221, wherein the carboplatin is administered at a dose sufficient for the human patient to exhibit an area under the curve of about 4.5 to about 5.0 every three weeks.~~

~~224. The method of any one of claims 191-223, wherein the human patient is provided a suitable amount of radiation up to a maximum of 70 grays in the first regimen.~~

~~225. The method of any one of claims 191-224, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the first regimen after the human patient has fasted for at least one hour or at least two hours.~~

~~226. The method of any one of claims 191-225, wherein the human patient fasts for at least one hour or at least two hours after Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the first regimen.~~

~~227. The method of any one of claims 191-226, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the second regimen after the human patient has fasted for at least one hour or at least two hours.~~

~~228. The method of any one of claims 191-227, wherein the human patient fasts for at least one hour or at least two hours after Compound A, or pharmaceutically acceptable salt thereof, is administered to the human patient in the second regimen.~~

~~229. The method of any one of claims 152-228, wherein the locally advanced squamous cell carcinoma is of the head and neck region.~~

~~230. The method of claim 229, wherein the locally advanced squamous cell carcinoma of the head and neck region is selected from the group consisting of oral cavity, oropharynx, larynx, and hypopharynx.~~

~~231. The method of claim 230, wherein the locally advanced squamous cell carcinoma of the head and neck region is oropharyngeal cancer.~~

~~232. The method of claim 231, wherein the oropharyngeal cancer is unrelated to human papillomavirus (HPV) infection.~~

~~233. The method of claim 231, wherein the oropharyngeal cancer is related to human papillomavirus (HPV) infection.~~

~~234. The method of any one of claims 152-233, wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 1998 staging system or wherein the locally advanced squamous cell carcinoma is Stage III, Stage IVA, or Stage IVB according to the American Joint Committee on Cancer 2010 or 2018 staging system.~~

~~235. A method for treating a human patient having locally advanced squamous cell carcinoma, wherein the method comprises administering to the patient Compound A, or pharmaceutically acceptable salt thereof, cisplatin or carboplatin, and IMRT for at least one cycle of 21 days.~~

~~236. The method of claim 235, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered from Day 1 to Day 14 of the at least one cycle of 21 days at a dose corresponding to 100 mg per day or more to 200 mg per day or less of Compound A as its free base.~~

237. The method of claim 236, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered at a dose corresponding to 200 mg per day of Compound A as its free base.

238. The method of claim 236 or 237, wherein Compound A, or pharmaceutically acceptable salt thereof or is initially administered at least once at a dose corresponding to 200 mg per day of Compound A as its free base and wherein subsequently Compound A, or pharmaceutically acceptable salt thereof, is administered at least once at a reduced dose corresponding to 150 mg per day or 100 mg per day of Compound A as its free base.

239. The method of claim 236, 237 or 238, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered after at least 1 hour of fasting.

240. The method of claim 239, wherein Compound A, or pharmaceutically acceptable salt thereof, is administered followed by at least 1 hour of fasting.

241. The method of claim 240, wherein cisplatin is administered at Day 2 of the at least one cycle of 21 days at a dose of 50 mg/m^2 per day or more to 100 mg/m^2 per day or less.

242. The method of claim 241, wherein cisplatin is administered at a dose of 100 mg/m^2 per day.

243. The method of claim 241 or 242, wherein cisplatin is initially administered at least once at a dose of 100 mg/m^2 per day and wherein subsequently cisplatin is administered at least once at a reduced dose of 50 mg/m^2 per day or 75 mg/m^2 per day.

244. The method of claim 241, 242 or 243, wherein cisplatin is administered by intravenous infusion over a time period of at least 90 min.

~~245. The method of claim 244, wherein IMRT is administered to the gross tumor volume in fractions with 1 fraction on each of 5 days per 7 days, i.e. on Days 1-5, 8-12, and 15-19 of the 21 day cycle, each fraction having radiation of 2.0 gray.~~

~~246. The method of claim 245, wherein elective irradiation is administered to locoregional areas in fractions with 1 fraction on each of 5 days per 7 days, i.e. on Days 1-5, 8-12, and 15-19 of the 21 day cycle, each fraction having radiation of 1.6 gray.~~

~~247. The method of claim 246, wherein on days when compound A or a pharmaceutically acceptable salt thereof, cisplatin or carboplatin and IMRT are administered, compound A or a pharmaceutically acceptable salt thereof is administered first, followed by administration of cisplatin or carboplatin followed by administration of IMRT.~~

~~248. The method of claim 247, wherein the patient fulfils one or more of the following criteria:~~
~~(i) the human patient has a positive smoking history of 10 pack-years;~~
~~(ii) the human patient is a heavy consumer of alcohol consuming on average 21 drinks per week;~~
~~(iii) the human patient has no history of infection with human immunodeficiency virus (HIV)~~
~~(iv) the human patient has no other infections such as viral and/or bacterial and/or mycotic infections requiring a systemic treatment;~~
~~(v) the human patient has no active uncontrolled inflammatory disease, such as rheumatoid arthritis, systemic lupus erythematosus, Sjögren syndrome or severe extensive psoriasis, requiring ongoing treatment with anti-tumor necrosis factor (TNF) medication~~
~~(vi) the human patient has no impaired cardiovascular function or clinically significant cardiovascular diseases;~~
~~(vii) the human patient has no symptomatic pulmonary disease requiring continuous or intermittent oxygen supply;~~
~~(viii) the human patient has no non-compensated or symptomatic liver cirrhosis which shows a Child-Pugh score of B or C.~~

~~249. An IAP antagonist or a pharmaceutically acceptable salt thereof for use in a method according to any of the preceding claims 1 to 151.~~

~~250. Compound A or a pharmaceutically acceptable salt thereof for use in a method according to any of the preceding claims 1 to 248.~~

~~251. The use of an IAP antagonist or a pharmaceutically acceptable salt thereof and preferably Compound A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for the treatment of locally advanced squamous cell carcinoma according to any one of claims 1 to 248.~~

~~252~~41. A kit comprising:(a) a first pharmaceutical composition comprising an inhibitor of apoptosis protein ("IAP") antagonist (e.g. Compound A or a pharmaceutically acceptable salt thereof); and (b) an insert instructing use of the first pharmaceutical composition for treating locally advanced squamous cell carcinoma via any of the methods ~~according to~~as defined in any one of claims 1 to ~~248~~40.