WHAT IS CLAIMED IS:

1. A method of identifying a patient nonresponsive to treatment with a B-Raf inhibitor, comprising determining the presence or absence of a K-ras mutation in a sample that has been obtained from a tumor of a patient, wherein said k-ras mutation is at least G12D, whereby the presence of a K-ras mutation indicates a patient will not respond to said B-Raf inhibitor treatment.

2. A method of determining whether a tumor will respond to treatment with a B-Raf inhibitor, comprising determining in a sample of said tumor the presence of a mutant K-ras protein or gene, wherein said mutant k-ras is at least G12D, whereby the presence of a mutant K-ras protein or gene indicates that the tumor will not respond to treatment with a B-Raf inhibitor.

3. A method of predicting whether a patient will be nonresponsive to treatment with a specific B-Raf inhibitor, comprising determining the presence or absence of a K-ras mutation in a sample that has been obtained from a tumor of the patient, wherein the K-ras mutation is at least G12D; and wherein if a K-ras mutation is present, the patient is predicted to be nonresponsive to treatment with a specific B-Raf inhibitor.

~~3. The method of claim 1 wherein said K-ras mutation is an activating mutation.~~

~~4. The method of claim 1 wherein said K-ras mutation is at least one of G12C; G12A;G12D; G12R; G12S; G12V; G13C; and G13D.~~

~~5.~~4. The method of any one of claims 1-3 wherein said B-Raf inhibitor is a specific B-Raf kinase inhibitor.

5. The method of claim 3 wherein said specific B-raf kinase inhibitor is GDC-0879.

6. The method of claim 1 wherein the presence of a K-ras mutation is determined by amplifying K-ras nucleic acid from said tumor, or a fragment thereof suspected of containing a mutation, and sequencing said amplified nucleic acid.

7. The method of claim 1 wherein the presence of a K-ras mutation is determined by amplifying K-RAS nucleic acid from said tumor, or a fragment thereof suspected of containing a mutation, and comparing the electrophoretic mobility of the amplified nucleic acid to the electrophoretic mobility of corresponding wild-type K-ras nucleic acid or fragment.

~~8. A method of predicting whether a patient will be nonresponsive to treatment with a specific B-Raf inhibitor, comprising determining the presence or absence of a K-ras mutation in a sample that has been obtained from a tumor of the patient, wherein the K-ras mutation is in codon 12 or codon 13; and wherein if a K-ras mutation is present, the patient is predicted to be nonresponsive to treatment with a specific B-Raf inhibitor.~~

~~9. The method of claim 1, wherein the determining the presence or absence of a K-ras mutation in a tumor comprises amplifying a K-ras nucleic acid from the tumor and sequencing the amplified nucleic acid.~~

~~10.~~8. The method of claim 1, wherein the determining the presence or absence of a K-ras mutation in a tumor comprises detecting a mutant K-ras polypeptide in a sample of the tumor ~~using a specific binding agent to a mutant K-ras polypeptide~~.

~~11. The method of claim 1, wherein the K-ras mutation is selected from G12S, G12V, G12D, G12A, G12C, G13A, and G13D.~~

~~12.~~9. A kit useable for the method of claim 1, comprising material specific for detecting a K-ras mutant gene or protein, and material specific for detecting a B-Raf mutant gene or protein~~.~~

~~13. The kit of claim 12~~, further comprising instructions for use in identifying a patient nonresponsive to treatment with a B-Raf inhibitor.

~~14.~~10. The kit of claim ~~13~~9, wherein said patient has lung or colorectal cancer.

15. A method of classifying a breast, lung, colon, ovarian, thyroid, melanoma or pancreatic tumor comprising the steps of: detecting expression or activity of a (i) a gene encoding the B-Raf V600E mutant and (ii) a gene encoding a k-Ras mutant in a tumor sample that has been obtained from a patient.

16. The method of claim 15, further comprising classifying the tumor as belonging to a tumor subclass based on the results of the detecting step; and selecting a treatment based on the classifying step, wherein said treatment is other than a B-Raf V600E specific inhibitor if said k-RAS mutant is overexpressed in said tumor sample.

17. A method of identifying a tumor nonresponsive to treatment with a B-Raf inhibitor, comprising determining the expression level of a receptor tyrosine kinase (RTK) in a sample that has been obtained from a tumor of a patient, whereby aberrant expression or induction of said RTK indicates said patient will not respond to said B-Raf inhibitor treatment, and wherein said tumor expresses B-Raf V600E.

18. The method of claim 17, wherein said RTK is EGFR or cMET.

19. The method of claim 18, wherein said tumor is to be administered an effective amount of an inhibitor of said EGFR or cMET in combination with a B-Raf inhibitor.

20. The method of claim 19, wherein said EGFR inhibitor is erlotinib.

21. The method of claim 20, wherein said combination is to be administered in a synergistic amount.

22. The method of claim 17, wherein said tumor type is colon or melanoma.