

Next-generation sequencing (NGS) is performed to test for the presence of microsatellite instability, single nucleotide variations, deletions, and insertions in coding regions and intron/exon boundaries of the genes listed. Additionally, gene fusions involving ALK, ROS1, RET, NTRK1, NTRK2, and NTRK3 genes, as well as the MET exon 14 skipping alteration, are tested using the Idylla Biocartis GeneFusion qualitative detection assay. When appropriate, alterations detected are confirmed by an independent reference method such as Sanger sequencing, fluorescence in situ hybridization, reverse transcription polymerase chain reaction, or immunohistochemistry staining. Default reportable range offset is +/-2 base pairs around each targeted exon region.

Genomic Build: GRCh37 (hg19) unless otherwise specified

As a result of technical limitations of the assay (including regions of homology, high GC content, and repetitive sequences), there are regions of some genes that cannot be effectively evaluated. Refer to gene regions table below for complete gene coverage information. To verify if a specific region/exon/variant is covered by this assay, contact the laboratory at 800-533-1710.

Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
ALK	Ex1	chr2	30142857	30143527	NM_004304
ALK	Ex2	chr2	29940442	29940565	NM_004304
ALK	Ex3	chr2	29917714	29917882	NM_004304
ALK	Ex4	chr2	29754779	29754984	NM_004304
ALK	Ex5	chr2	29606596	29606727	NM_004304
ALK	Ex6	chr2	29551214	29551349	NM_004304
ALK	Ex7	chr2	29543615	29543750	NM_004304
ALK	Ex8	chr2	29541168	29541272	NM_004304
ALK	Ex9	chr2	29519752	29519925	NM_004304
ALK	Ex10	chr2	29498266	29498364	NM_004304
ALK	Ex11	chr2	29497963	29498095	NM_004304
ALK	Ex12	chr2	29473969	29474135	NM_004304
ALK	Ex13	chr2	29462544	29462698	NM_004304
ALK	Ex14	chr2	29456429	29456564	NM_004304
ALK	Ex15	chr2	29455168	29455316	NM_004304
ALK	Ex16	chr2	29451748	29451934	NM_004304
ALK	Ex17	chr2	29450438	29450540	NM_004304
ALK	Ex18	chr2	29449786	29449942	NM_004304
ALK	Ex19	chr2	29448325	29448433	NM_004304
ALK	Ex20	chr2	29446206	29446396	NM_004304
ALK	Ex21	chr2	29445381	29445475	NM_004304
ALK	Ex22	chr2	29445208	29445276	NM_004304
ALK	Ex23	chr2	29443570	29443703	NM_004304
ALK	Ex24	chr2	29436848	29436949	NM_004304
ALK	Ex25	chr2	29432650	29432746	NM_004304
ALK	Ex26	chr2	29430035	29430140	NM_004304
ALK	Ex27	chr2	29420406	29420544	NM_004304
ALK	Ex28	chr2	29419634	29419728	NM_004304
ALK	Ex29	chr2	29416088	29416790	NM_004304

# Targeted Genes and Methodology Details for MayoComplete Lung Cancer Panel (continued)

Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
<i>BRAF</i>	Ex1	chr7	140624364	140624505	NM_004333
<i>BRAF</i>	Ex2	chr7	140549909	140550014	NM_004333
<i>BRAF</i>	Ex3	chr7	140534407	140534674	NM_004333
<i>BRAF</i>	Ex4	chr7	140508690	140508797	NM_004333
<i>BRAF</i>	Ex5	chr7	140507758	140507864	NM_004333
<i>BRAF</i>	Ex6	chr7	140501210	140501362	NM_004333
<i>BRAF</i>	Ex7	chr7	140500160	140500283	NM_004333
<i>BRAF</i>	Ex8	chr7	140494106	140494269	NM_004333
<i>BRAF</i>	Ex9	chr7	140487346	140487386	NM_004333
<i>BRAF</i>	Ex10	chr7	140482819	140482959	NM_004333
<i>BRAF</i>	Ex11	chr7	140481374	140481495	NM_004333
<i>BRAF</i>	Ex12	chr7	140477789	140477877	NM_004333
<i>BRAF</i>	Ex13	chr7	140476710	140476890	NM_004333
<i>BRAF</i>	Ex14	chr7	140453985	140454035	NM_004333
<i>BRAF</i>	Ex15	chr7	140453073	140453195	NM_004333
<i>BRAF</i>	Ex16	chr7	140449085	140449220	NM_004333
<i>BRAF</i>	Ex17	chr7	140439610	140439748	NM_004333
<i>BRAF</i>	Ex18	chr7	140434395	140434572	NM_004333
<i>EGFR</i>	Ex1	chr7	55086969	55087060	NM_005228
<i>EGFR</i>	Ex2	chr7	55209977	55210132	NM_005228
<i>EGFR</i>	Ex3	chr7	55210996	55211183	NM_005228
<i>EGFR</i>	Ex4	chr7	55214297	55214435	NM_005228
<i>EGFR</i>	Ex5	chr7	55218985	55219057	NM_005228
<i>EGFR</i>	Ex6	chr7	55220237	55220359	NM_005228
<i>EGFR</i>	Ex7	chr7	55221702	55221847	NM_005228
<i>EGFR</i>	Ex8	chr7	55223521	55223641	NM_005228
<i>EGFR</i>	Ex9	chr7	55224224	55224354	NM_005228
<i>EGFR</i>	Ex10	chr7	55224450	55224527	NM_005228
<i>EGFR</i>	Ex11	chr7	55225354	55225448	NM_005228
<i>EGFR</i>	Ex12	chr7	55227830	55228033	NM_005228
<i>EGFR</i>	Ex13	chr7	55229190	55229326	NM_005228
<i>EGFR</i>	Ex14	chr7	55231424	55231518	NM_005228
<i>EGFR</i>	Ex15	chr7	55232971	55233132	NM_005228
<i>EGFR</i>	Ex16	chr7	55238866	55238908	NM_005228
<i>EGFR</i>	Ex17	chr7	55240674	55240819	NM_005228
<i>EGFR</i>	Ex18	chr7	55241612	55241738	NM_005228
<i>EGFR</i>	Ex19	chr7	55242413	55242515	NM_005228
<i>EGFR</i>	Ex20	chr7	55248984	55249173	NM_005228

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Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
EGFR	Ex21	chr7	55259410	55259569	NM_005228
EGFR	Ex22	chr7	55260457	55260536	NM_005228
EGFR	Ex23	chr7	55266408	55266558	NM_005228
EGFR	Ex24	chr7	55268007	55268108	NM_005228
EGFR	Ex25	chr7	55268879	55269050	NM_005228
EGFR	Ex26	chr7	55269426	55269477	NM_005228
EGFR	Ex27	chr7	55270208	55270320	NM_005228
EGFR	Ex28	chr7	55272947	55273312	NM_005228
ERBB2	Ex1	chr17	37856490	37856566	NM_004448
ERBB2	Ex2	chr17	37863241	37863396	NM_004448
ERBB2	Ex3	chr17	37864572	37864789	NM_004448
ERBB2	Ex4	chr17	37865569	37865707	NM_004448
ERBB2	Ex5	chr17	37866064	37866136	NM_004448
ERBB2	Ex6	chr17	37866337	37866456	NM_004448
ERBB2	Ex7	chr17	37866591	37866736	NM_004448
ERBB2	Ex8	chr17	37868179	37868302	NM_004448
ERBB2	Ex9	chr17	37868573	37868703	NM_004448
ERBB2	Ex10	chr17	37871537	37871614	NM_004448
ERBB2	Ex11	chr17	37871697	37871791	NM_004448
ERBB2	Ex12	chr17	37871991	37872194	NM_004448
ERBB2	Ex13	chr17	37872552	37872688	NM_004448
ERBB2	Ex14	chr17	37872766	37872860	NM_004448
ERBB2	Ex15	chr17	37873571	37873735	NM_004448
ERBB2	Ex16	chr17	37876038	37876089	NM_004448
ERBB2	Ex17	chr17	37879570	37879712	NM_004448
ERBB2	Ex18	chr17	37879789	37879915	NM_004448
ERBB2	Ex19	chr17	37880163	37880265	NM_004448
ERBB2	Ex20	chr17	37880977	37881166	NM_004448
ERBB2	Ex21	chr17	37881300	37881459	NM_004448
ERBB2	Ex22	chr17	37881578	37881657	NM_004448
ERBB2	Ex23	chr17	37881958	37882108	NM_004448
ERBB2	Ex24	chr17	37882813	37882914	NM_004448
ERBB2	Ex25	chr17	37883066	37883258	NM_004448
ERBB2	Ex26	chr17	37883546	37883802	NM_004448
ERBB2	Ex27	chr17	37883940	37884299	NM_004448
HRAS	Ex2	chr11	534210	534324	NM_001130442
HRAS	Ex3	chr11	533764	533946	NM_001130442
HRAS	Ex4	chr11	533451	533614	NM_001130442

# Targeted Genes and Methodology Details for MayoComplete Lung Cancer Panel (continued)

Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
<i>HRAS</i>	Ex5	chr11	532634	532757	NM_001130442
<i>KRAS</i>	Ex2	chr12	25398206	25398320	NM_033360
<i>KRAS</i>	Ex3	chr12	25380166	25380348	NM_033360
<i>KRAS</i>	Ex4	chr12	25378546	25378709	NM_033360
<i>KRAS</i>	Ex5	chr12	25368373	25368496	NM_033360
<i>MDM2</i>	Ex1	chr12	69202256	69202273	NM_002392
<i>MDM2</i>	Ex2	chr12	69202986	69203074	NM_002392
<i>MDM2</i>	Ex3	chr12	69207332	69207410	NM_002392
<i>MDM2</i>	Ex4	chr12	69210590	69210727	NM_002392
<i>MDM2</i>	Ex5	chr12	69214103	69214156	NM_002392
<i>MDM2</i>	Ex6	chr12	69218141	69218212	NM_002392
<i>MDM2</i>	Ex7	chr12	69218333	69218433	NM_002392
<i>MDM2</i>	Ex8	chr12	69222549	69222713	NM_002392
<i>MDM2</i>	Ex9	chr12	69229607	69229766	NM_002392
<i>MDM2</i>	Ex10	chr12	69230450	69230531	NM_002392
<i>MDM2</i>	Ex11	chr12	69233052	69233631	NM_002392
<i>MET</i>	Ex2	chr7	116339137	116340340	NM_001127500
<i>MET</i>	Ex3	chr7	116371720	116371915	NM_001127500
<i>MET</i>	Ex4	chr7	116380002	116380140	NM_001127500
<i>MET</i>	Ex5	chr7	116380904	116381081	NM_001127500
<i>MET</i>	Ex6	chr7	116395407	116395571	NM_001127500
<i>MET</i>	Ex7	chr7	116397489	116397595	NM_001127500
<i>MET</i>	Ex8	chr7	116397690	116397830	NM_001127500
<i>MET</i>	Ex9	chr7	116398511	116398676	NM_001127500
<i>MET</i>	Ex10	chr7	116399389	116399546	NM_001127500
<i>MET</i>	Ex11	chr7	116403102	116403324	NM_001127500
<i>MET</i>	Ex12	chr7	116409697	116409847	NM_001127500
<i>MET</i>	Ex13	chr7	116411550	116411710	NM_001127500
<i>MET</i>	Ex14	chr7	116411837	116412089	NM_001127500
<i>MET</i>	Ex15	chr7	116414933	116415167	NM_001127500
<i>MET</i>	Ex16	chr7	116417441	116417525	NM_001127500
<i>MET</i>	Ex17	chr7	116418828	116419013	NM_001127500
<i>MET</i>	Ex18	chr7	116422040	116422153	NM_001127500
<i>MET</i>	Ex19	chr7	116423356	116423525	NM_001127500
<i>MET</i>	Ex20	chr7	116435707	116435847	NM_001127500
<i>MET</i>	Ex21	chr7	116435939	116436180	NM_001127500
<i>NRAS</i>	Ex2	chr1	115258669	115258783	NM_002524
<i>NRAS</i>	Ex3	chr1	115256419	115256601	NM_002524

# Targeted Genes and Methodology Details for MayoComplete Lung Cancer Panel (continued)

Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
<i>NRAS</i>	Ex4	chr1	115252188	115252351	NM_002524
<i>NRAS</i>	Ex5	chr1	115251154	115251277	NM_002524
<i>RET</i>	Ex1	chr10	43572705	43572781	NM_020975
<i>RET</i>	Ex2	chr10	43595905	43596172	NM_020975
<i>RET</i>	Ex3	chr10	43597788	43598079	NM_020975
<i>RET</i>	Ex4	chr10	43600398	43600643	NM_020975
<i>RET</i>	Ex5	chr10	43601822	43602021	NM_020975
<i>RET</i>	Ex6	chr10	43604477	43604680	NM_020975
<i>RET</i>	Ex7	chr10	43606653	43606915	NM_020975
<i>RET</i>	Ex8	chr10	43607545	43607674	NM_020975
<i>RET</i>	Ex9	chr10	43608299	43608413	NM_020975
<i>RET</i>	Ex10	chr10	43609002	43609125	NM_020975
<i>RET</i>	Ex11	chr10	43609926	43610186	NM_020975
<i>RET</i>	Ex12	chr10	43612030	43612181	NM_020975
<i>RET</i>	Ex13	chr10	43613819	43613930	NM_020975
<i>RET</i>	Ex14	chr10	43614977	43615195	NM_020975
<i>RET</i>	Ex15	chr10	43615527	43615653	NM_020975
<i>RET</i>	Ex16	chr10	43617392	43617466	NM_020975
<i>RET</i>	Ex17	chr10	43619117	43619258	NM_020975
<i>RET</i>	Ex18	chr10	43620329	43620432	NM_020975
<i>RET</i>	Ex19	chr10	43622021	43622172	NM_020975
<i>RET</i>	Ex20	chr10	43623558	43623719	NM_020975
<i>ROS1</i>	Ex1	chr6	117746695	117746821	NM_002944
<i>ROS1</i>	Ex2	chr6	117739623	117739671	NM_002944
<i>ROS1</i>	Ex3	chr6	117737419	117737482	NM_002944
<i>ROS1</i>	Ex4	chr6	117730743	117730807	NM_002944
<i>ROS1</i>	Ex5	chr6	117725441	117725593	NM_002944
<i>ROS1</i>	Ex6	chr6	117724300	117724442	NM_002944
<i>ROS1</i>	Ex7	chr6	117718076	117718281	NM_002944
<i>ROS1</i>	Ex8	chr6	117717349	117717429	NM_002944
<i>ROS1</i>	Ex9	chr6	117715777	117715903	NM_002944
<i>ROS1</i>	Ex10	chr6	117715323	117715511	NM_002944
<i>ROS1</i>	Ex11	chr6	117714385	117714486	NM_002944
<i>ROS1</i>	Ex12	chr6	117710511	117711011	NM_002944
<i>ROS1</i>	Ex13	chr6	117708941	117709199	NM_002944
<i>ROS1</i>	Ex14	chr6	117708050	117708164	NM_002944
<i>ROS1</i>	Ex15	chr6	117706844	117707026	NM_002944
<i>ROS1</i>	Ex16	chr6	117704478	117704673	NM_002944

## Targeted Genes and Methodology Details for MayoComplete Lung Cancer Panel (continued)

Gene	Exon	Chromosome	Genomic Start	Genomic Stop	Reference Transcript
<i>ROS1</i>	Ex17	chr6	117700220	117700324	NM_002944
<i>ROS1</i>	Ex18	chr6	117687237	117687455	NM_002944
<i>ROS1</i>	Ex19	chr6	117686742	117686906	NM_002944
<i>ROS1</i>	Ex20	chr6	117686221	117686369	NM_002944
<i>ROS1</i>	Ex21	chr6	117683764	117684030	NM_002944
<i>ROS1</i>	Ex22	chr6	117681503	117681570	NM_002944
<i>ROS1</i>	Ex23	chr6	117680970	117681176	NM_002944
<i>ROS1</i>	Ex24	chr6	117678965	117679174	NM_002944
<i>ROS1</i>	Ex25	chr6	117677790	117678080	NM_002944
<i>ROS1</i>	Ex26	chr6	117674151	117674334	NM_002944
<i>ROS1</i>	Ex27	chr6	117665221	117665427	NM_002944
<i>ROS1</i>	Ex28	chr6	117663561	117663709	NM_002944
<i>ROS1</i>	Ex29	chr6	117662561	117662797	NM_002944
<i>ROS1</i>	Ex30	chr6	117662296	117662476	NM_002944
<i>ROS1</i>	Ex31	chr6	117658333	117658505	NM_002944
<i>ROS1</i>	Ex32	chr6	117650490	117650611	NM_002944
<i>ROS1</i>	Ex33	chr6	117647385	117647579	NM_002944
<i>ROS1</i>	Ex34	chr6	117645493	117645580	NM_002944
<i>ROS1</i>	Ex35	chr6	117642420	117642559	NM_002944
<i>ROS1</i>	Ex36	chr6	117641029	117641195	NM_002944
<i>ROS1</i>	Ex37	chr6	117639349	117639417	NM_002944
<i>ROS1</i>	Ex38	chr6	117638304	117638437	NM_002944
<i>ROS1</i>	Ex39	chr6	117632181	117632282	NM_002944
<i>ROS1</i>	Ex40	chr6	117631242	117631446	NM_002944
<i>ROS1</i>	Ex41	chr6	117629955	117630093	NM_002944
<i>ROS1</i>	Ex42	chr6	117622135	117622302	NM_002944
<i>ROS1</i>	Ex43	chr6	117609653	117609967	NM_002944
<i>STK11</i>	Ex1	chr19	1206911	1207204	NM_000455
<i>STK11</i>	Ex2	chr19	1218414	1218501	NM_000455
<i>STK11</i>	Ex3	chr19	1219321	1219414	NM_000455
<i>STK11</i>	Ex4	chr19	1220370	1220506	NM_000455
<i>STK11</i>	Ex5	chr19	1220578	1220718	NM_000455
<i>STK11</i>	Ex6	chr19	1221210	1221341	NM_000455
<i>STK11</i>	Ex7	chr19	1221946	1222007	NM_000455
<i>STK11</i>	Ex8	chr19	1222982	1223173	NM_000455
<i>STK11</i>	Ex9	chr19	1226451	1226648	NM_000455