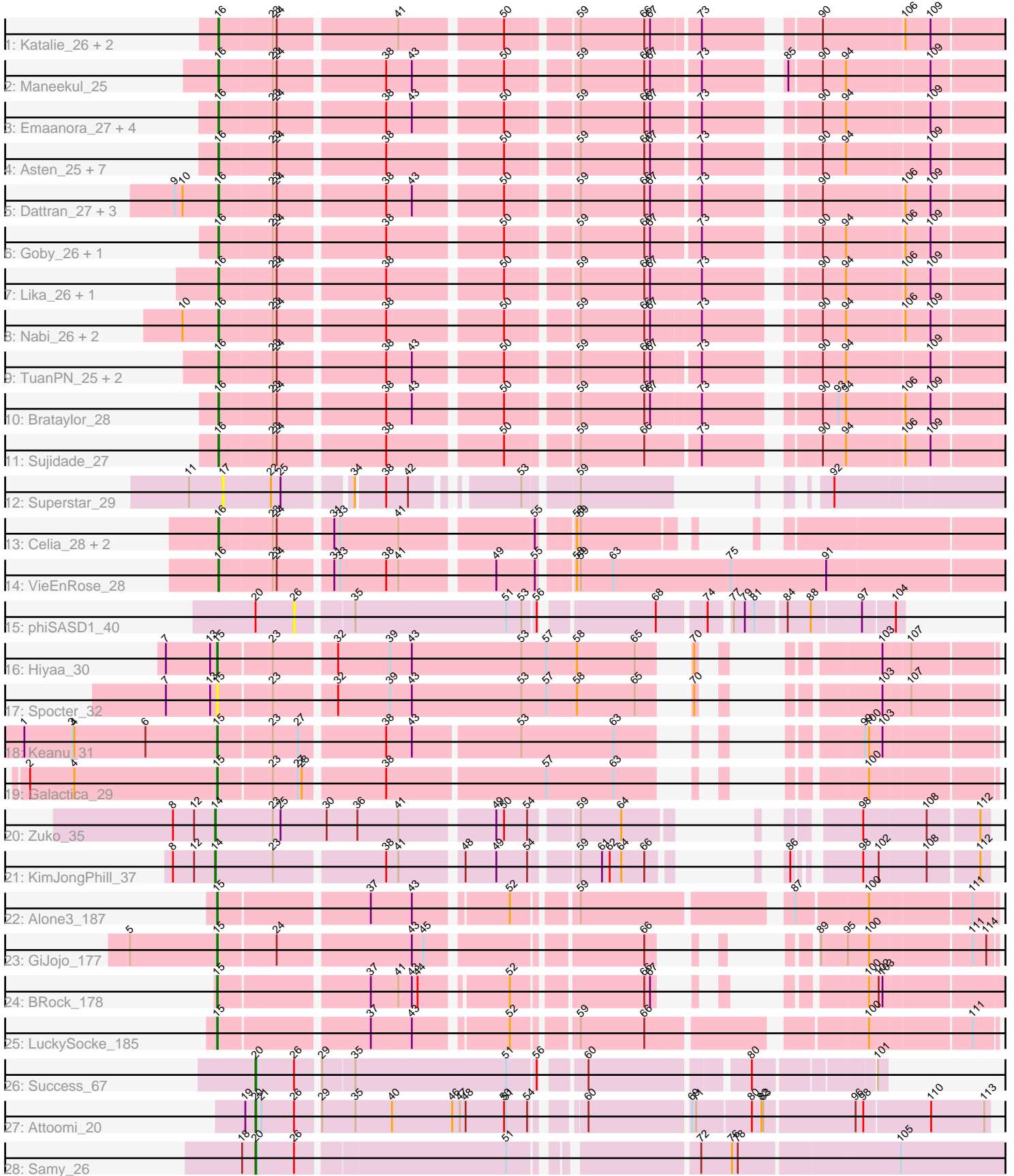


Pham 156420



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

Pham 156420 Report

This analysis was run 04/12/24 on database version 558.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 156420 has 52 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Katalie_26, RedBear_27, South40_26
- Track 2 : Maneekul_25
- Track 3 : Emaanora_27, OzzyJ_26, Hippo_25, SarahRose_25, Dwayne_25
- Track 4 : Asten_25, Triste_25, BarryBee_27, Snorlax_25, TagePhighter_26, Whatever_25, Chucky_25, Werner_25
- Track 5 : Dattran_27, Zemlya_27, Danzina_27, Celeste_26
- Track 6 : Goby_26, Toma_26
- Track 7 : Lika_26, Godpower_27
- Track 8 : Nabi_26, Rana_26, Lorelei_26
- Track 9 : TuanPN_25, Yasdnil_25, Ejemplo_25
- Track 10 : Brataylor_28
- Track 11 : Sujidade_27
- Track 12 : Superstar_29
- Track 13 : Celia_28, Itza_28, Urza_28
- Track 14 : VieEnRose_28
- Track 15 : phiSASD1_40
- Track 16 : Hiyaa_30
- Track 17 : Spocter_32
- Track 18 : Keanu_31
- Track 19 : Galactica_29
- Track 20 : Zuko_35
- Track 21 : KimJongPhill_37
- Track 22 : Alone3_187
- Track 23 : GiJojo_177
- Track 24 : BRock_178
- Track 25 : LuckySocke_185
- Track 26 : Success_67
- Track 27 : Attoomi_20
- Track 28 : Samy_26

Summary of Final Annotations (See graph section above for start numbers):

The start number called the most often in the published annotations is 16, it was called in 36 of the 48 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Asten_25, BarryBee_27, Brataylor_28, Celeste_26, Celia_28, Chucky_25, Danzina_27, Dattran_27, Dwayne_25, Ejemplo_25, Emaanora_27, Goby_26, Godpower_27, Hippo_25, Itza_28, Katalie_26, Lika_26, Lorelei_26, Maneekul_25, Nabi_26, OzzyJ_26, Rana_26, RedBear_27, SarahRose_25, Snorlax_25, South40_26, Sujidade_27, TagePhighter_26, Toma_26, Triste_25, TuanPN_25, Urza_28, VieEnRose_28, Werner_25, Whatever_25, Yasdniil_25, Zemlya_27,

Genes that have the "Most Annotated" start but do not call it:

-

Genes that do not have the "Most Annotated" start:

- Alone3_187, Attoomi_20, BRock_178, Galactica_29, GiJojo_177, Hiyaa_30, Keanu_31, KimJongPhill_37, LuckySocke_185, Samy_26, Spocter_32, Success_67, Superstar_29, Zuko_35, phiSASD1_40,

Summary by start number:

Start 14:

- Found in 2 of 52 (3.8%) of genes in pham
- Manual Annotations of this start: 2 of 48
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KimJongPhill_37 (BR), Zuko_35 (BR),

Start 15:

- Found in 8 of 52 (15.4%) of genes in pham
- Manual Annotations of this start: 7 of 48
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alone3_187 (BS), BRock_178 (BS), Galactica_29 (BQ), GiJojo_177 (BS), Hiyaa_30 (BQ), Keanu_31 (BQ), LuckySocke_185 (BS), Spocter_32 (BQ),

Start 16:

- Found in 37 of 52 (71.2%) of genes in pham
- Manual Annotations of this start: 36 of 48
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Asten_25 (BD1), BarryBee_27 (BD1), Brataylor_28 (BD1), Celeste_26 (BD1), Celia_28 (BD6), Chucky_25 (BD1), Danzina_27 (BD1), Dattran_27 (BD1), Dwayne_25 (BD1), Ejemplo_25 (BD1), Emaanora_27 (BD1), Goby_26 (BD1), Godpower_27 (BD1), Hippo_25 (BD1), Itza_28 (BD6), Katalie_26 (BD1), Lika_26 (BD1), Lorelei_26 (BD1), Maneekul_25 (BD1), Nabi_26 (BD1), OzzyJ_26 (BD1), Rana_26 (BD1), RedBear_27 (BD1), SarahRose_25 (BD1), Snorlax_25 (BD1), South40_26 (BD1), Sujidade_27 (BD1), TagePhighter_26 (BD1), Toma_26 (BD1), Triste_25 (BD1), TuanPN_25 (BD1), Urza_28 (BD6), VieEnRose_28 (BD6), Werner_25 (BD1), Whatever_25 (BD1), Yasdniil_25 (BD1), Zemlya_27 (BD1),

Start 17:

- Found in 1 of 52 (1.9%) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Superstar_29 (BD2),

Start 20:

- Found in 4 of 52 (7.7%) of genes in pham
- Manual Annotations of this start: 3 of 48
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Attoomi_20 (singleton), Samy_26 (singleton), Success_67 (singleton),

Start 26:

- Found in 4 of 52 (7.7%) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: phiSASD1_40 (BJ),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, BD2, BJ, BD6, BD1, BQ, BR, BS,

Info for manual annotations of cluster BD1:

- Start number 16 was manually annotated 32 times for cluster BD1.

Info for manual annotations of cluster BD6:

- Start number 16 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster BQ:

- Start number 15 was manually annotated 3 times for cluster BQ.

Info for manual annotations of cluster BR:

- Start number 14 was manually annotated 2 times for cluster BR.

Info for manual annotations of cluster BS:

- Start number 15 was manually annotated 4 times for cluster BS.

Gene Information:

Gene: Alone3_187 Start: 95865, Stop: 96938, Start Num: 15

Candidate Starts for Alone3_187:

(Start: 15 @95865 has 7 MA's), (37, 96081), (43, 96144), (52, 96273), (59, 96357), (87, 96648), (100, 96753), (111, 96903),

Gene: Asten_25 Start: 21080, Stop: 22168, Start Num: 16

Candidate Starts for Asten_25:

(Start: 16 @21080 has 36 MA's), (23, 21158), (24, 21164), (38, 21320), (50, 21485), (59, 21581), (66, 21680), (67, 21689), (73, 21761), (90, 21905), (94, 21941), (109, 22061),

Gene: Attoomi_20 Start: 16925, Stop: 17971, Start Num: 20

Candidate Starts for Attoomi_20:

(19, 16910), (Start: 20 @16925 has 3 MA's), (21, 16934), (26, 16985), (29, 17015), (35, 17066), (40, 17120), (46, 17213), (47, 17225), (48, 17234), (50, 17294), (51, 17297), (54, 17330), (60, 17387), (69, 17537), (71, 17543), (80, 17624), (82, 17639), (83, 17642), (96, 17774), (98, 17786), (110, 17882), (113, 17963),

Gene: BRock_178 Start: 91256, Stop: 92188, Start Num: 15

Candidate Starts for BRock_178:

(Start: 15 @91256 has 7 MA's), (37, 91472), (41, 91514), (43, 91535), (44, 91544), (52, 91661), (66, 91844), (67, 91853), (100, 91994), (102, 92009), (103, 92015),

Gene: BarryBee_27 Start: 21090, Stop: 22178, Start Num: 16

Candidate Starts for BarryBee_27:

(Start: 16 @21090 has 36 MA's), (23, 21168), (24, 21174), (38, 21330), (50, 21495), (59, 21591), (66, 21690), (67, 21699), (73, 21771), (90, 21915), (94, 21951), (109, 22071),

Gene: Brataylor_28 Start: 22093, Stop: 23187, Start Num: 16

Candidate Starts for Brataylor_28:

(Start: 16 @22093 has 36 MA's), (23, 22171), (24, 22177), (38, 22333), (43, 22372), (50, 22498), (59, 22594), (66, 22693), (67, 22702), (73, 22777), (90, 22924), (93, 22948), (94, 22960), (106, 23044), (109, 23080),

Gene: Celeste_26 Start: 21546, Stop: 22634, Start Num: 16

Candidate Starts for Celeste_26:

(9, 21483), (10, 21495), (Start: 16 @21546 has 36 MA's), (23, 21624), (24, 21630), (38, 21786), (43, 21825), (50, 21951), (59, 22047), (66, 22146), (67, 22155), (73, 22227), (90, 22371), (106, 22491), (109, 22527),

Gene: Celia_28 Start: 21987, Stop: 22973, Start Num: 16

Candidate Starts for Celia_28:

(Start: 16 @21987 has 36 MA's), (23, 22065), (24, 22071), (31, 22146), (33, 22155), (41, 22245), (55, 22437), (58, 22479), (59, 22485),

Gene: Chucky_25 Start: 21094, Stop: 22182, Start Num: 16

Candidate Starts for Chucky_25:

(Start: 16 @21094 has 36 MA's), (23, 21172), (24, 21178), (38, 21334), (50, 21499), (59, 21595), (66, 21694), (67, 21703), (73, 21775), (90, 21919), (94, 21955), (109, 22075),

Gene: Danzina_27 Start: 21847, Stop: 22935, Start Num: 16

Candidate Starts for Danzina_27:

(9, 21784), (10, 21796), (Start: 16 @21847 has 36 MA's), (23, 21925), (24, 21931), (38, 22087), (43, 22126), (50, 22252), (59, 22348), (66, 22447), (67, 22456), (73, 22528), (90, 22672), (106, 22792), (109, 22828),

Gene: Dattran_27 Start: 21656, Stop: 22744, Start Num: 16

Candidate Starts for Dattran_27:

(9, 21593), (10, 21605), (Start: 16 @21656 has 36 MA's), (23, 21734), (24, 21740), (38, 21896), (43, 21935), (50, 22061), (59, 22157), (66, 22256), (67, 22265), (73, 22337), (90, 22481), (106, 22601), (109, 22637),

Gene: Dwayne_25 Start: 21081, Stop: 22169, Start Num: 16

Candidate Starts for Dwayne_25:

(Start: 16 @21081 has 36 MA's), (23, 21159), (24, 21165), (38, 21321), (43, 21360), (50, 21486), (59, 21582), (66, 21681), (67, 21690), (73, 21762), (90, 21906), (94, 21942), (109, 22062),

Gene: Ejemplo_25 Start: 21116, Stop: 22204, Start Num: 16

Candidate Starts for Ejemplo_25:

(Start: 16 @21116 has 36 MA's), (23, 21194), (24, 21200), (38, 21356), (43, 21395), (50, 21521), (59, 21617), (66, 21716), (67, 21725), (73, 21794), (90, 21941), (94, 21977), (109, 22097),

Gene: Emaanora_27 Start: 21039, Stop: 22127, Start Num: 16

Candidate Starts for Emaanora_27:

(Start: 16 @21039 has 36 MA's), (23, 21117), (24, 21123), (38, 21279), (43, 21318), (50, 21444), (59, 21540), (66, 21639), (67, 21648), (73, 21720), (90, 21864), (94, 21900), (109, 22020),

Gene: Galactica_29 Start: 23278, Stop: 24240, Start Num: 15

Candidate Starts for Galactica_29:

(2, 22987), (4, 23056), (Start: 15 @23278 has 7 MA's), (23, 23356), (27, 23395), (28, 23401), (38, 23518), (57, 23755), (63, 23860), (100, 24055),

Gene: GiJojo_177 Start: 95573, Stop: 96496, Start Num: 15

Candidate Starts for GiJojo_177:

(5, 95438), (Start: 15 @95573 has 7 MA's), (24, 95657), (43, 95852), (45, 95870), (66, 96170), (89, 96242), (95, 96278), (100, 96311), (111, 96461), (114, 96482),

Gene: Goby_26 Start: 21661, Stop: 22749, Start Num: 16

Candidate Starts for Goby_26:

(Start: 16 @21661 has 36 MA's), (23, 21739), (24, 21745), (38, 21901), (50, 22066), (59, 22162), (66, 22261), (67, 22270), (73, 22342), (90, 22486), (94, 22522), (106, 22606), (109, 22642),

Gene: Godpower_27 Start: 21654, Stop: 22748, Start Num: 16

Candidate Starts for Godpower_27:

(Start: 16 @21654 has 36 MA's), (23, 21732), (24, 21738), (38, 21894), (50, 22059), (59, 22155), (66, 22254), (67, 22263), (73, 22341), (90, 22485), (94, 22521), (106, 22605), (109, 22641),

Gene: Hippo_25 Start: 21090, Stop: 22178, Start Num: 16

Candidate Starts for Hippo_25:

(Start: 16 @21090 has 36 MA's), (23, 21168), (24, 21174), (38, 21330), (43, 21369), (50, 21495), (59, 21591), (66, 21690), (67, 21699), (73, 21771), (90, 21915), (94, 21951), (109, 22071),

Gene: Hiyaa_30 Start: 24308, Stop: 25282, Start Num: 15

Candidate Starts for Hiyaa_30:

(7, 24230), (13, 24299), (Start: 15 @24308 has 7 MA's), (23, 24386), (32, 24473), (39, 24554), (43, 24587), (53, 24758), (57, 24797), (58, 24845), (65, 24935), (70, 24971), (103, 25118), (107, 25157),

Gene: Itza_28 Start: 21901, Stop: 22887, Start Num: 16

Candidate Starts for Itza_28:

(Start: 16 @21901 has 36 MA's), (23, 21979), (24, 21985), (31, 22060), (33, 22069), (41, 22159), (55, 22351), (58, 22393), (59, 22399),

Gene: Katalie_26 Start: 21379, Stop: 22464, Start Num: 16

Candidate Starts for Katalie_26:

(Start: 16 @21379 has 36 MA's), (23, 21457), (24, 21463), (41, 21637), (50, 21784), (59, 21880), (66, 21979), (67, 21988), (73, 22054), (90, 22201), (106, 22321), (109, 22357),

Gene: Keanu_31 Start: 24375, Stop: 25334, Start Num: 15

Candidate Starts for Keanu_31:

(1, 24078), (3, 24153), (4, 24156), (6, 24267), (Start: 15 @24375 has 7 MA's), (23, 24453), (27, 24492), (38, 24615), (43, 24654), (53, 24813), (63, 24957), (99, 25143), (100, 25149), (103, 25170),

Gene: KimJongPhill_37 Start: 33176, Stop: 32256, Start Num: 14

Candidate Starts for KimJongPhill_37:

(8, 33242), (12, 33209), (Start: 14 @33176 has 2 MA's), (23, 33089), (38, 32927), (41, 32909), (48, 32822), (49, 32774), (54, 32726), (59, 32666), (61, 32633), (62, 32621), (64, 32603), (66, 32567), (86, 32516), (98, 32441), (102, 32417), (108, 32345), (112, 32270),

Gene: Lika_26 Start: 21658, Stop: 22752, Start Num: 16

Candidate Starts for Lika_26:

(Start: 16 @21658 has 36 MA's), (23, 21736), (24, 21742), (38, 21898), (50, 22063), (59, 22159), (66, 22258), (67, 22267), (73, 22345), (90, 22489), (94, 22525), (106, 22609), (109, 22645),

Gene: Lorelei_26 Start: 21627, Stop: 22721, Start Num: 16

Candidate Starts for Lorelei_26:

(10, 21576), (Start: 16 @21627 has 36 MA's), (23, 21705), (24, 21711), (38, 21867), (50, 22032), (59, 22128), (66, 22227), (67, 22236), (73, 22311), (90, 22458), (94, 22494), (106, 22578), (109, 22614),

Gene: LuckySocke_185 Start: 94376, Stop: 95449, Start Num: 15

Candidate Starts for LuckySocke_185:

(Start: 15 @94376 has 7 MA's), (37, 94592), (43, 94655), (52, 94784), (59, 94868), (66, 94967), (100, 95264), (111, 95414),

Gene: Maneekul_25 Start: 21115, Stop: 22203, Start Num: 16

Candidate Starts for Maneekul_25:

(Start: 16 @21115 has 36 MA's), (23, 21193), (24, 21199), (38, 21355), (43, 21394), (50, 21520), (59, 21616), (66, 21715), (67, 21724), (73, 21793), (85, 21895), (90, 21940), (94, 21976), (109, 22096),

Gene: Nabi_26 Start: 21627, Stop: 22721, Start Num: 16

Candidate Starts for Nabi_26:

(10, 21576), (Start: 16 @21627 has 36 MA's), (23, 21705), (24, 21711), (38, 21867), (50, 22032), (59, 22128), (66, 22227), (67, 22236), (73, 22311), (90, 22458), (94, 22494), (106, 22578), (109, 22614),

Gene: OzzyJ_26 Start: 21081, Stop: 22169, Start Num: 16

Candidate Starts for OzzyJ_26:

(Start: 16 @21081 has 36 MA's), (23, 21159), (24, 21165), (38, 21321), (43, 21360), (50, 21486), (59, 21582), (66, 21681), (67, 21690), (73, 21762), (90, 21906), (94, 21942), (109, 22062),

Gene: Rana_26 Start: 21627, Stop: 22721, Start Num: 16

Candidate Starts for Rana_26:

(10, 21576), (Start: 16 @21627 has 36 MA's), (23, 21705), (24, 21711), (38, 21867), (50, 22032), (59, 22128), (66, 22227), (67, 22236), (73, 22311), (90, 22458), (94, 22494), (106, 22578), (109, 22614),

Gene: RedBear_27 Start: 21379, Stop: 22464, Start Num: 16

Candidate Starts for RedBear_27:

(Start: 16 @21379 has 36 MA's), (23, 21457), (24, 21463), (41, 21637), (50, 21784), (59, 21880), (66, 21979), (67, 21988), (73, 22054), (90, 22201), (106, 22321), (109, 22357),

Gene: Samy_26 Start: 20532, Stop: 21713, Start Num: 20

Candidate Starts for Samy_26:

(18, 20511), (Start: 20 @20532 has 3 MA's), (26, 20592), (51, 20901), (72, 21147), (76, 21195), (78, 21204), (105, 21444),

Gene: SarahRose_25 Start: 21090, Stop: 22178, Start Num: 16

Candidate Starts for SarahRose_25:

(Start: 16 @21090 has 36 MA's), (23, 21168), (24, 21174), (38, 21330), (43, 21369), (50, 21495), (59, 21591), (66, 21690), (67, 21699), (73, 21771), (90, 21915), (94, 21951), (109, 22071),

Gene: Snorlax_25 Start: 21093, Stop: 22181, Start Num: 16

Candidate Starts for Snorlax_25:

(Start: 16 @21093 has 36 MA's), (23, 21171), (24, 21177), (38, 21333), (50, 21498), (59, 21594), (66, 21693), (67, 21702), (73, 21774), (90, 21918), (94, 21954), (109, 22074),

Gene: South40_26 Start: 21379, Stop: 22464, Start Num: 16

Candidate Starts for South40_26:

(Start: 16 @21379 has 36 MA's), (23, 21457), (24, 21463), (41, 21637), (50, 21784), (59, 21880), (66, 21979), (67, 21988), (73, 22054), (90, 22201), (106, 22321), (109, 22357),

Gene: Spocter_32 Start: 24296, Stop: 25270, Start Num: 15

Candidate Starts for Spocter_32:

(7, 24218), (13, 24287), (Start: 15 @24296 has 7 MA's), (23, 24374), (32, 24461), (39, 24542), (43, 24575), (53, 24746), (57, 24785), (58, 24833), (65, 24923), (70, 24959), (103, 25106), (107, 25145),

Gene: Success_67 Start: 44240, Stop: 45103, Start Num: 20

Candidate Starts for Success_67:

(Start: 20 @44240 has 3 MA's), (26, 44300), (29, 44330), (35, 44378), (51, 44609), (56, 44651), (60, 44705), (80, 44924), (101, 45089),

Gene: Sujidade_27 Start: 21949, Stop: 23037, Start Num: 16

Candidate Starts for Sujidade_27:

(Start: 16 @21949 has 36 MA's), (23, 22027), (24, 22033), (38, 22189), (50, 22354), (59, 22450), (66, 22549), (73, 22630), (90, 22774), (94, 22810), (106, 22894), (109, 22930),

Gene: Superstar_29 Start: 22840, Stop: 23736, Start Num: 17

Candidate Starts for Superstar_29:

(11, 22789), (17, 22840), (22, 22912), (25, 22927), (34, 23017), (38, 23059), (42, 23092), (53, 23224), (59, 23296), (92, 23485),

Gene: TagePhighter_26 Start: 21093, Stop: 22181, Start Num: 16

Candidate Starts for TagePhighter_26:

(Start: 16 @21093 has 36 MA's), (23, 21171), (24, 21177), (38, 21333), (50, 21498), (59, 21594), (66, 21693), (67, 21702), (73, 21774), (90, 21918), (94, 21954), (109, 22074),

Gene: Toma_26 Start: 21661, Stop: 22749, Start Num: 16

Candidate Starts for Toma_26:

(Start: 16 @21661 has 36 MA's), (23, 21739), (24, 21745), (38, 21901), (50, 22066), (59, 22162), (66, 22261), (67, 22270), (73, 22342), (90, 22486), (94, 22522), (106, 22606), (109, 22642),

Gene: Triste_25 Start: 21081, Stop: 22169, Start Num: 16

Candidate Starts for Triste_25:

(Start: 16 @21081 has 36 MA's), (23, 21159), (24, 21165), (38, 21321), (50, 21486), (59, 21582), (66, 21681), (67, 21690), (73, 21762), (90, 21906), (94, 21942), (109, 22062),

Gene: TuanPN_25 Start: 21116, Stop: 22204, Start Num: 16

Candidate Starts for TuanPN_25:

(Start: 16 @21116 has 36 MA's), (23, 21194), (24, 21200), (38, 21356), (43, 21395), (50, 21521), (59, 21617), (66, 21716), (67, 21725), (73, 21794), (90, 21941), (94, 21977), (109, 22097),

Gene: Urza_28 Start: 21922, Stop: 22908, Start Num: 16

Candidate Starts for Urza_28:

(Start: 16 @21922 has 36 MA's), (23, 22000), (24, 22006), (31, 22081), (33, 22090), (41, 22180), (55, 22372), (58, 22414), (59, 22420),

Gene: VieEnRose_28 Start: 21828, Stop: 22976, Start Num: 16

Candidate Starts for VieEnRose_28:

(Start: 16 @21828 has 36 MA's), (23, 21906), (24, 21912), (31, 21987), (33, 21996), (38, 22068), (41, 22086), (49, 22221), (55, 22278), (58, 22320), (59, 22326), (63, 22377), (75, 22560), (91, 22707),

Gene: Werner_25 Start: 21091, Stop: 22179, Start Num: 16

Candidate Starts for Werner_25:

(Start: 16 @21091 has 36 MA's), (23, 21169), (24, 21175), (38, 21331), (50, 21496), (59, 21592), (66, 21691), (67, 21700), (73, 21772), (90, 21916), (94, 21952), (109, 22072),

Gene: Whatever_25 Start: 21091, Stop: 22179, Start Num: 16

Candidate Starts for Whatever_25:

(Start: 16 @21091 has 36 MA's), (23, 21169), (24, 21175), (38, 21331), (50, 21496), (59, 21592), (66, 21691), (67, 21700), (73, 21772), (90, 21916), (94, 21952), (109, 22072),

Gene: YasdniI_25 Start: 21112, Stop: 22200, Start Num: 16

Candidate Starts for YasdniI_25:

(Start: 16 @21112 has 36 MA's), (23, 21190), (24, 21196), (38, 21352), (43, 21391), (50, 21517), (59, 21613), (66, 21712), (67, 21721), (73, 21790), (90, 21937), (94, 21973), (109, 22093),

Gene: Zemlya_27 Start: 21653, Stop: 22741, Start Num: 16

Candidate Starts for Zemlya_27:

(9, 21590), (10, 21602), (Start: 16 @21653 has 36 MA's), (23, 21731), (24, 21737), (38, 21893), (43, 21932), (50, 22058), (59, 22154), (66, 22253), (67, 22262), (73, 22334), (90, 22478), (106, 22598), (109, 22634),

Gene: Zuko_35 Start: 31679, Stop: 30726, Start Num: 14

Candidate Starts for Zuko_35:

(8, 31745), (12, 31712), (Start: 14 @31679 has 2 MA's), (23, 31592), (25, 31580), (30, 31508), (36, 31460), (41, 31397), (49, 31262), (50, 31250), (54, 31214), (59, 31151), (64, 31088), (98, 30911), (108, 30815), (112, 30740),

Gene: phiSASD1_40 Start: 16596, Stop: 17432, Start Num: 26

Candidate Starts for phiSASD1_40:

(Start: 20 @16536 has 3 MA's), (26, 16596), (35, 16674), (51, 16905), (53, 16929), (56, 16947), (68, 17106), (74, 17172), (77, 17199), (79, 17214), (81, 17229), (84, 17271), (88, 17307), (97, 17379), (104, 17421),