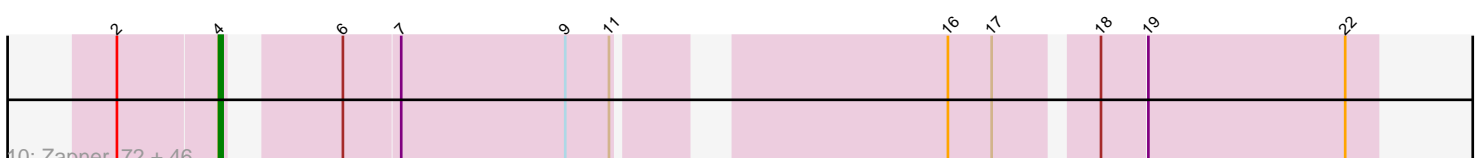
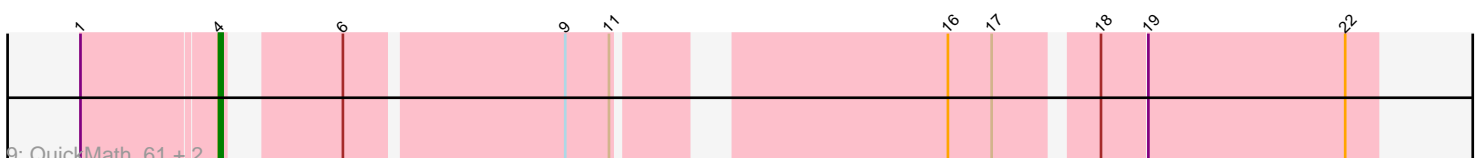
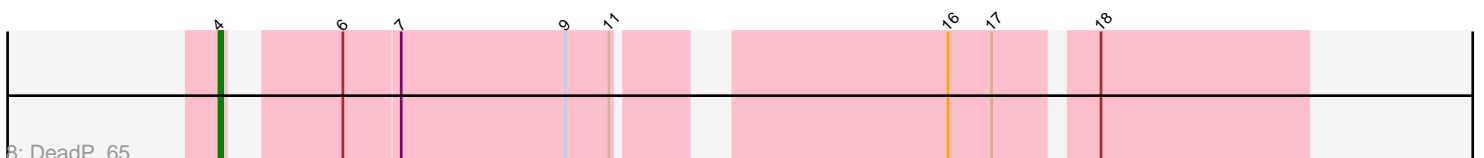
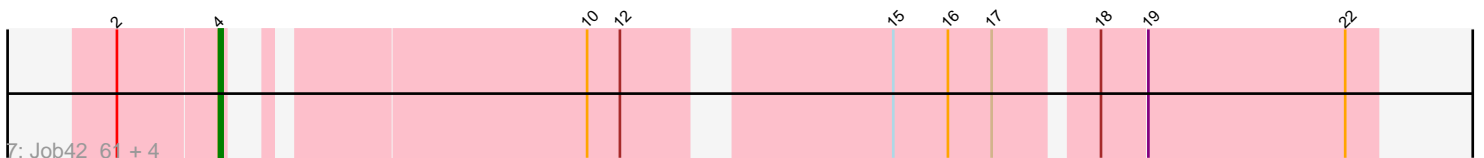
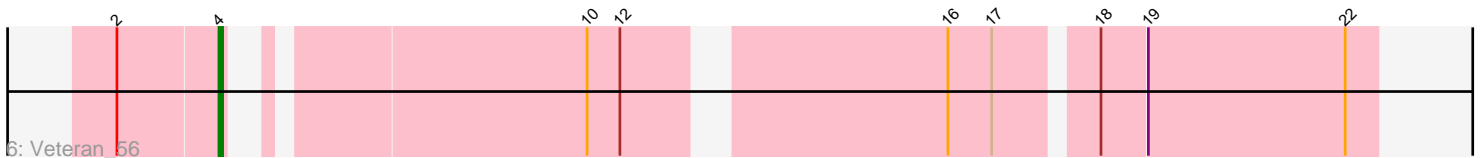
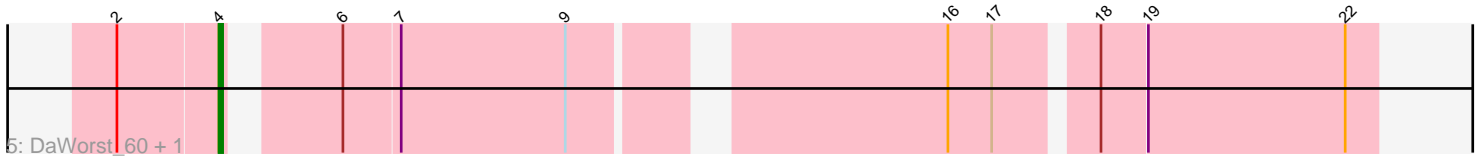
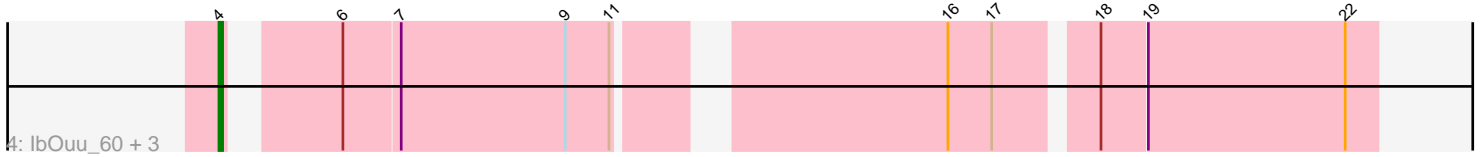
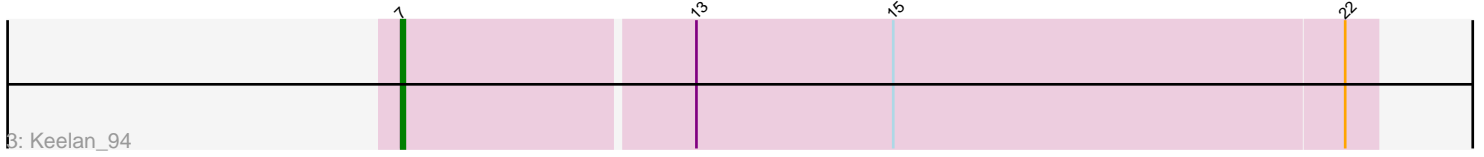
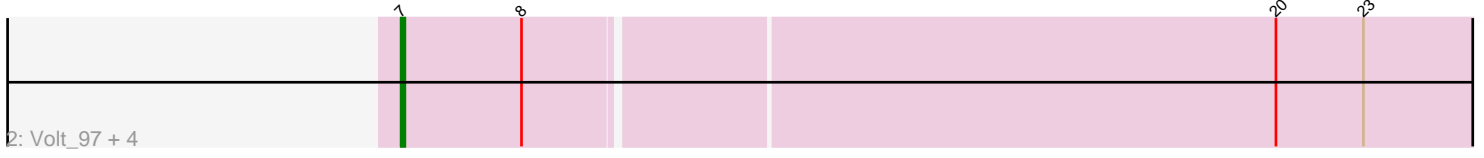


Pham 202914



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 202914 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202914 has 70 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Squiddly\_71
- Track 2 : Volt\_97, Fryberger\_93, Guey18\_98, Ziko\_96, Ronaldo\_96
- Track 3 : Keelan\_94
- Track 4 : IbOuu\_60, Enby\_60, CaptainTrips\_56, SG4\_56
- Track 5 : DaWorst\_60, Eish\_63
- Track 6 : Veteran\_56
- Track 7 : Job42\_61, Nivrat\_55, LilMoolah\_57, Philus\_62, DRBy19\_62
- Track 8 : DeadP\_65
- Track 9 : QuickMath\_61, MulchExplorer\_66, Kimberlium\_62
- Track 10 : Zapner\_72, Boomer\_64, DaddyRickover\_58, Jabbawokkie\_73, Burwell21\_57, Zizzle\_63, UncleRicky\_58, Firehouse51\_60, SiSi\_57, Alexphander\_63, OldBen\_56, Blarby\_71, Koella\_53, Scottish\_57, Soul22\_65, Jarcob\_59, Drago\_57, ShiLan\_58, Lij\_55, Marker\_61, PMC\_56, Totinger\_58, Crumble\_54, Phatniss\_57, ByChance\_51, Karhdo\_56, DirtMcgirt\_58, MadMen\_57, LittleShirley\_58, Doug\_61, Dante\_60, Priscilla\_59, BobaPhett\_63, Mutaforma13\_63, Rialto\_65, Lorde\_59, Tootsieroll\_60, Zerg\_59, Pollywog\_60, NormanBulbieJr\_59, Rita\_60, Madiba\_57, Mova\_60, Chuckly\_62, Rockne\_60, Cabrinians\_60, Fancypants\_61

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

The start number called the most often in the published annotations is 4, it was called in 59 of the 66 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alexphander\_63, Blarby\_71, BobaPhett\_63, Boomer\_64, Burwell21\_57, ByChance\_51, Cabrinians\_60, CaptainTrips\_56, Chuckly\_62, Crumble\_54, DRBy19\_62, DaWorst\_60, DaddyRickover\_58, Dante\_60, DeadP\_65, DirtMcgirt\_58, Doug\_61, Drago\_57, Eish\_63, Enby\_60, Fancypants\_61, Firehouse51\_60, IbOuu\_60, Jabbawokkie\_73, Jarcob\_59, Job42\_61, Karhdo\_56, Kimberlium\_62, Koella\_53, LilMoolah\_57, LittleShirley\_58, Lij\_55, Lorde\_59, MadMen\_57, Madiba\_57, Marker\_61, Mova\_60, MulchExplorer\_66, Mutaforma13\_63, Nivrat\_55, NormanBulbieJr\_59, OldBen\_56, PMC\_56, Phatniss\_57, Philus\_62, Pollywog\_60, Priscilla\_59, QuickMath\_61, Rialto\_65, Rita\_60, Rockne\_60, SG4\_56, Scottish\_57, ShiLan\_58, SiSi\_57, Soul22\_65, Tootsieroll\_60, Totinger\_58, UncleRicky\_58,

Veteran\_56, Zapner\_72, Zerg\_59, Zizzle\_63,

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

- 

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

- Fryberger\_93, Guey18\_98, Keelan\_94, Ronaldo\_96, Squiddly\_71, Volt\_97, Ziko\_96,

### Summary by start number:

Start 4:

- Found in 63 of 70 ( 90.0% ) of genes in pham
- Manual Annotations of this start: 59 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alexphander\_63 (F1), Blarby\_71 (F), BobaPhett\_63 (F1), Boomer\_64 (F1), Burwell21\_57 (F1), ByChance\_51 (F1), Cabrinians\_60 (F1), CaptainTrips\_56 (F1), Chuckly\_62 (F1), Crumble\_54 (F1), DRBy19\_62 (F1), DaWorst\_60 (F1), DaddyRickover\_58 (F1), Dante\_60 (F1), DeadP\_65 (F1), DirtMcgirt\_58 (F1), Doug\_61 (F1), Drago\_57 (F1), Eish\_63 (F1), Enby\_60 (F1), Fancypants\_61 (F1), Firehouse51\_60 (F1), IbOuu\_60 (F1), Jabbawokkie\_73 (F2), Jarcob\_59 (F1), Job42\_61 (F1), Karhdo\_56 (F1), Kimberlium\_62 (F1), Koella\_53 (F1), LilMoolah\_57 (F1), LittleShirley\_58 (F1), Llij\_55 (F1), Lorde\_59 (F1), MadMen\_57 (F1), Madiba\_57 (F1), Marker\_61 (F1), Mova\_60 (F1), MulchExplorer\_66 (F1), Mutaforma13\_63 (F1), Nivrat\_55 (F1), NormanBulbieJr\_59 (F1), OldBen\_56 (F1), PMC\_56 (F1), Phatniss\_57 (F1), Philus\_62 (F1), Pollywog\_60 (F1), Priscilla\_59 (F1), QuickMath\_61 (F1), Rialto\_65 (F1), Rita\_60 (F1), Rockne\_60 (F1), SG4\_56 (F1), Scottish\_57 (F1), ShiLan\_58 (F1), SiSi\_57 (F1), Soul22\_65 (F2), Tootsieroll\_60 (F1), Totinger\_58 (F1), UncleRicky\_58 (F1), Veteran\_56 (F1), Zapner\_72 (F2), Zerg\_59 (F1), Zizzle\_63 (F1),

Start 5:

- Found in 1 of 70 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Squiddly\_71 (DN2),

Start 7:

- Found in 60 of 70 ( 85.7% ) of genes in pham
- Manual Annotations of this start: 6 of 66
- Called 10.0% of time when present
- Phage (with cluster) where this start called: Fryberger\_93 (DP), Guey18\_98 (DP), Keelan\_94 (DP), Ronaldo\_96 (DP), Volt\_97 (DP), Ziko\_96 (DP),

### Summary by clusters:

There are 5 clusters represented in this pham: F1, F2, F, DP, DN2,

Info for manual annotations of cluster DN2:

- Start number 5 was manually annotated 1 time for cluster DN2.

Info for manual annotations of cluster DP:

- Start number 7 was manually annotated 6 times for cluster DP.

Info for manual annotations of cluster F1:

•Start number 4 was manually annotated 56 times for cluster F1.

Info for manual annotations of cluster F2:

•Start number 4 was manually annotated 3 times for cluster F2.

### **Gene Information:**

Gene: Alexphander\_63 Start: 40422, Stop: 40706, Start Num: 4

Candidate Starts for Alexphander\_63:

(2, 40395), (Start: 4 @40422 has 59 MA's), (6, 40446), (Start: 7 @40461 has 6 MA's), (9, 40506), (11, 40518), (16, 40596), (17, 40608), (18, 40632), (19, 40644), (22, 40698),

Gene: Blarby\_71 Start: 41835, Stop: 42119, Start Num: 4

Candidate Starts for Blarby\_71:

(2, 41808), (Start: 4 @41835 has 59 MA's), (6, 41859), (Start: 7 @41874 has 6 MA's), (9, 41919), (11, 41931), (16, 42009), (17, 42021), (18, 42045), (19, 42057), (22, 42111),

Gene: BobaPhett\_63 Start: 42651, Stop: 42935, Start Num: 4

Candidate Starts for BobaPhett\_63:

(2, 42624), (Start: 4 @42651 has 59 MA's), (6, 42675), (Start: 7 @42690 has 6 MA's), (9, 42735), (11, 42747), (16, 42825), (17, 42837), (18, 42861), (19, 42873), (22, 42927),

Gene: Boomer\_64 Start: 42326, Stop: 42610, Start Num: 4

Candidate Starts for Boomer\_64:

(2, 42299), (Start: 4 @42326 has 59 MA's), (6, 42350), (Start: 7 @42365 has 6 MA's), (9, 42410), (11, 42422), (16, 42500), (17, 42512), (18, 42536), (19, 42548), (22, 42602),

Gene: Burwell21\_57 Start: 39934, Stop: 40218, Start Num: 4

Candidate Starts for Burwell21\_57:

(2, 39907), (Start: 4 @39934 has 59 MA's), (6, 39958), (Start: 7 @39973 has 6 MA's), (9, 40018), (11, 40030), (16, 40108), (17, 40120), (18, 40144), (19, 40156), (22, 40210),

Gene: ByChance\_51 Start: 35625, Stop: 35906, Start Num: 4

Candidate Starts for ByChance\_51:

(2, 35598), (Start: 4 @35625 has 59 MA's), (6, 35649), (Start: 7 @35661 has 6 MA's), (9, 35706), (11, 35718), (16, 35796), (17, 35808), (18, 35832), (19, 35844), (22, 35898),

Gene: Cabrinians\_60 Start: 40012, Stop: 40296, Start Num: 4

Candidate Starts for Cabrinians\_60:

(2, 39985), (Start: 4 @40012 has 59 MA's), (6, 40036), (Start: 7 @40051 has 6 MA's), (9, 40096), (11, 40108), (16, 40186), (17, 40198), (18, 40222), (19, 40234), (22, 40288),

Gene: CaptainTrips\_56 Start: 39508, Stop: 39792, Start Num: 4

Candidate Starts for CaptainTrips\_56:

(Start: 4 @39508 has 59 MA's), (6, 39532), (Start: 7 @39547 has 6 MA's), (9, 39592), (11, 39604), (16, 39682), (17, 39694), (18, 39718), (19, 39730), (22, 39784),

Gene: Chuckly\_62 Start: 40654, Stop: 40938, Start Num: 4

Candidate Starts for Chuckly\_62:

(2, 40627), (Start: 4 @40654 has 59 MA's), (6, 40678), (Start: 7 @40693 has 6 MA's), (9, 40738), (11, 40750), (16, 40828), (17, 40840), (18, 40864), (19, 40876), (22, 40930),

Gene: Crumble\_54 Start: 35948, Stop: 36232, Start Num: 4

Candidate Starts for Crumble\_54:

(2, 35921), (Start: 4 @35948 has 59 MA's), (6, 35972), (Start: 7 @35987 has 6 MA's), (9, 36032), (11, 36044), (16, 36122), (17, 36134), (18, 36158), (19, 36170), (22, 36224),

Gene: DRBy19\_62 Start: 41112, Stop: 41393, Start Num: 4

Candidate Starts for DRBy19\_62:

(2, 41085), (Start: 4 @41112 has 59 MA's), (10, 41196), (12, 41205), (15, 41268), (16, 41283), (17, 41295), (18, 41319), (19, 41331), (22, 41385),

Gene: DaWorst\_60 Start: 40413, Stop: 40697, Start Num: 4

Candidate Starts for DaWorst\_60:

(2, 40386), (Start: 4 @40413 has 59 MA's), (6, 40437), (Start: 7 @40452 has 6 MA's), (9, 40497), (16, 40587), (17, 40599), (18, 40623), (19, 40635), (22, 40689),

Gene: DaddyRickover\_58 Start: 40151, Stop: 40435, Start Num: 4

Candidate Starts for DaddyRickover\_58:

(2, 40124), (Start: 4 @40151 has 59 MA's), (6, 40175), (Start: 7 @40190 has 6 MA's), (9, 40235), (11, 40247), (16, 40325), (17, 40337), (18, 40361), (19, 40373), (22, 40427),

Gene: Dante\_60 Start: 39936, Stop: 40220, Start Num: 4

Candidate Starts for Dante\_60:

(2, 39909), (Start: 4 @39936 has 59 MA's), (6, 39960), (Start: 7 @39975 has 6 MA's), (9, 40020), (11, 40032), (16, 40110), (17, 40122), (18, 40146), (19, 40158), (22, 40212),

Gene: DeadP\_65 Start: 42582, Stop: 42848, Start Num: 4

Candidate Starts for DeadP\_65:

(Start: 4 @42582 has 59 MA's), (6, 42606), (Start: 7 @42621 has 6 MA's), (9, 42666), (11, 42678), (16, 42756), (17, 42768), (18, 42792),

Gene: DirtMcgirt\_58 Start: 38676, Stop: 38960, Start Num: 4

Candidate Starts for DirtMcgirt\_58:

(2, 38649), (Start: 4 @38676 has 59 MA's), (6, 38700), (Start: 7 @38715 has 6 MA's), (9, 38760), (11, 38772), (16, 38850), (17, 38862), (18, 38886), (19, 38898), (22, 38952),

Gene: Doug\_61 Start: 40679, Stop: 40963, Start Num: 4

Candidate Starts for Doug\_61:

(2, 40652), (Start: 4 @40679 has 59 MA's), (6, 40703), (Start: 7 @40718 has 6 MA's), (9, 40763), (11, 40775), (16, 40853), (17, 40865), (18, 40889), (19, 40901), (22, 40955),

Gene: Drago\_57 Start: 38679, Stop: 38963, Start Num: 4

Candidate Starts for Drago\_57:

(2, 38652), (Start: 4 @38679 has 59 MA's), (6, 38703), (Start: 7 @38718 has 6 MA's), (9, 38763), (11, 38775), (16, 38853), (17, 38865), (18, 38889), (19, 38901), (22, 38955),

Gene: Eish\_63 Start: 40928, Stop: 41212, Start Num: 4

Candidate Starts for Eish\_63:

(2, 40901), (Start: 4 @40928 has 59 MA's), (6, 40952), (Start: 7 @40967 has 6 MA's), (9, 41012), (16, 41102), (17, 41114), (18, 41138), (19, 41150), (22, 41204),

Gene: Enby\_60 Start: 38955, Stop: 39239, Start Num: 4

Candidate Starts for Enby\_60:

(Start: 4 @38955 has 59 MA's), (6, 38979), (Start: 7 @38994 has 6 MA's), (9, 39039), (11, 39051), (16, 39129), (17, 39141), (18, 39165), (19, 39177), (22, 39231),

Gene: Fancypants\_61 Start: 40646, Stop: 40930, Start Num: 4

Candidate Starts for Fancypants\_61:

(2, 40619), (Start: 4 @40646 has 59 MA's), (6, 40670), (Start: 7 @40685 has 6 MA's), (9, 40730), (11, 40742), (16, 40820), (17, 40832), (18, 40856), (19, 40868), (22, 40922),

Gene: Firehouse51\_60 Start: 43530, Stop: 43814, Start Num: 4

Candidate Starts for Firehouse51\_60:

(2, 43503), (Start: 4 @43530 has 59 MA's), (6, 43554), (Start: 7 @43569 has 6 MA's), (9, 43614), (11, 43626), (16, 43704), (17, 43716), (18, 43740), (19, 43752), (22, 43806),

Gene: Fryberger\_93 Start: 47445, Stop: 47750, Start Num: 7

Candidate Starts for Fryberger\_93:

(Start: 7 @47445 has 6 MA's), (8, 47478), (20, 47679), (23, 47703),

Gene: Guey18\_98 Start: 48765, Stop: 49070, Start Num: 7

Candidate Starts for Guey18\_98:

(Start: 7 @48765 has 6 MA's), (8, 48798), (20, 48999), (23, 49023),

Gene: lbOuu\_60 Start: 40412, Stop: 40696, Start Num: 4

Candidate Starts for lbOuu\_60:

(Start: 4 @40412 has 59 MA's), (6, 40436), (Start: 7 @40451 has 6 MA's), (9, 40496), (11, 40508), (16, 40586), (17, 40598), (18, 40622), (19, 40634), (22, 40688),

Gene: Jabbawokkie\_73 Start: 41755, Stop: 42039, Start Num: 4

Candidate Starts for Jabbawokkie\_73:

(2, 41728), (Start: 4 @41755 has 59 MA's), (6, 41779), (Start: 7 @41794 has 6 MA's), (9, 41839), (11, 41851), (16, 41929), (17, 41941), (18, 41965), (19, 41977), (22, 42031),

Gene: Jarcob\_59 Start: 39980, Stop: 40264, Start Num: 4

Candidate Starts for Jarcob\_59:

(2, 39953), (Start: 4 @39980 has 59 MA's), (6, 40004), (Start: 7 @40019 has 6 MA's), (9, 40064), (11, 40076), (16, 40154), (17, 40166), (18, 40190), (19, 40202), (22, 40256),

Gene: Job42\_61 Start: 41920, Stop: 42201, Start Num: 4

Candidate Starts for Job42\_61:

(2, 41893), (Start: 4 @41920 has 59 MA's), (10, 42004), (12, 42013), (15, 42076), (16, 42091), (17, 42103), (18, 42127), (19, 42139), (22, 42193),

Gene: Karhdo\_56 Start: 39525, Stop: 39809, Start Num: 4

Candidate Starts for Karhdo\_56:

(2, 39498), (Start: 4 @39525 has 59 MA's), (6, 39549), (Start: 7 @39564 has 6 MA's), (9, 39609), (11, 39621), (16, 39699), (17, 39711), (18, 39735), (19, 39747), (22, 39801),

Gene: Keelan\_94 Start: 48287, Stop: 48550, Start Num: 7

Candidate Starts for Keelan\_94:

(Start: 7 @48287 has 6 MA's), (13, 48365), (15, 48419), (22, 48542),

Gene: Kimberlium\_62 Start: 41811, Stop: 42092, Start Num: 4

Candidate Starts for Kimberlium\_62:

(1, 41775), (Start: 4 @41811 has 59 MA's), (6, 41835), (9, 41892), (11, 41904), (16, 41982), (17, 41994), (18, 42018), (19, 42030), (22, 42084),

Gene: Koella\_53 Start: 35910, Stop: 36194, Start Num: 4

Candidate Starts for Koella\_53:

(2, 35883), (Start: 4 @35910 has 59 MA's), (6, 35934), (Start: 7 @35949 has 6 MA's), (9, 35994), (11, 36006), (16, 36084), (17, 36096), (18, 36120), (19, 36132), (22, 36186),

Gene: LilMoolah\_57 Start: 39425, Stop: 39706, Start Num: 4

Candidate Starts for LilMoolah\_57:

(2, 39398), (Start: 4 @39425 has 59 MA's), (10, 39509), (12, 39518), (15, 39581), (16, 39596), (17, 39608), (18, 39632), (19, 39644), (22, 39698),

Gene: LittleShirley\_58 Start: 40469, Stop: 40753, Start Num: 4

Candidate Starts for LittleShirley\_58:

(2, 40442), (Start: 4 @40469 has 59 MA's), (6, 40493), (Start: 7 @40508 has 6 MA's), (9, 40553), (11, 40565), (16, 40643), (17, 40655), (18, 40679), (19, 40691), (22, 40745),

Gene: Llij\_55 Start: 38833, Stop: 39117, Start Num: 4

Candidate Starts for Llij\_55:

(2, 38806), (Start: 4 @38833 has 59 MA's), (6, 38857), (Start: 7 @38872 has 6 MA's), (9, 38917), (11, 38929), (16, 39007), (17, 39019), (18, 39043), (19, 39055), (22, 39109),

Gene: Lorde\_59 Start: 38120, Stop: 38404, Start Num: 4

Candidate Starts for Lorde\_59:

(2, 38093), (Start: 4 @38120 has 59 MA's), (6, 38144), (Start: 7 @38159 has 6 MA's), (9, 38204), (11, 38216), (16, 38294), (17, 38306), (18, 38330), (19, 38342), (22, 38396),

Gene: MadMen\_57 Start: 39757, Stop: 40041, Start Num: 4

Candidate Starts for MadMen\_57:

(2, 39730), (Start: 4 @39757 has 59 MA's), (6, 39781), (Start: 7 @39796 has 6 MA's), (9, 39841), (11, 39853), (16, 39931), (17, 39943), (18, 39967), (19, 39979), (22, 40033),

Gene: Madiba\_57 Start: 39006, Stop: 39290, Start Num: 4

Candidate Starts for Madiba\_57:

(2, 38979), (Start: 4 @39006 has 59 MA's), (6, 39030), (Start: 7 @39045 has 6 MA's), (9, 39090), (11, 39102), (16, 39180), (17, 39192), (18, 39216), (19, 39228), (22, 39282),

Gene: Marker\_61 Start: 40100, Stop: 40384, Start Num: 4

Candidate Starts for Marker\_61:

(2, 40073), (Start: 4 @40100 has 59 MA's), (6, 40124), (Start: 7 @40139 has 6 MA's), (9, 40184), (11, 40196), (16, 40274), (17, 40286), (18, 40310), (19, 40322), (22, 40376),

Gene: Mova\_60 Start: 39510, Stop: 39794, Start Num: 4

Candidate Starts for Mova\_60:

(2, 39483), (Start: 4 @39510 has 59 MA's), (6, 39534), (Start: 7 @39549 has 6 MA's), (9, 39594), (11, 39606), (16, 39684), (17, 39696), (18, 39720), (19, 39732), (22, 39786),

Gene: MulchExplorer\_66 Start: 41810, Stop: 42091, Start Num: 4

Candidate Starts for MulchExplorer\_66:

(1, 41774), (Start: 4 @41810 has 59 MA's), (6, 41834), (9, 41891), (11, 41903), (16, 41981), (17, 41993), (18, 42017), (19, 42029), (22, 42083),

Gene: Mutaforma13\_63 Start: 42840, Stop: 43124, Start Num: 4

Candidate Starts for Mutaforma13\_63:

(2, 42813), (Start: 4 @42840 has 59 MA's), (6, 42864), (Start: 7 @42879 has 6 MA's), (9, 42924), (11, 42936), (16, 43014), (17, 43026), (18, 43050), (19, 43062), (22, 43116),

Gene: Nivrat\_55 Start: 39298, Stop: 39579, Start Num: 4

Candidate Starts for Nivrat\_55:

(2, 39271), (Start: 4 @39298 has 59 MA's), (10, 39382), (12, 39391), (15, 39454), (16, 39469), (17, 39481), (18, 39505), (19, 39517), (22, 39571),

Gene: NormanBulbieJr\_59 Start: 39923, Stop: 40207, Start Num: 4

Candidate Starts for NormanBulbieJr\_59:

(2, 39896), (Start: 4 @39923 has 59 MA's), (6, 39947), (Start: 7 @39962 has 6 MA's), (9, 40007), (11, 40019), (16, 40097), (17, 40109), (18, 40133), (19, 40145), (22, 40199),

Gene: OldBen\_56 Start: 39848, Stop: 40132, Start Num: 4

Candidate Starts for OldBen\_56:

(2, 39821), (Start: 4 @39848 has 59 MA's), (6, 39872), (Start: 7 @39887 has 6 MA's), (9, 39932), (11, 39944), (16, 40022), (17, 40034), (18, 40058), (19, 40070), (22, 40124),

Gene: PMC\_56 Start: 40550, Stop: 40834, Start Num: 4

Candidate Starts for PMC\_56:

(2, 40523), (Start: 4 @40550 has 59 MA's), (6, 40574), (Start: 7 @40589 has 6 MA's), (9, 40634), (11, 40646), (16, 40724), (17, 40736), (18, 40760), (19, 40772), (22, 40826),

Gene: Phatniss\_57 Start: 39928, Stop: 40212, Start Num: 4

Candidate Starts for Phatniss\_57:

(2, 39901), (Start: 4 @39928 has 59 MA's), (6, 39952), (Start: 7 @39967 has 6 MA's), (9, 40012), (11, 40024), (16, 40102), (17, 40114), (18, 40138), (19, 40150), (22, 40204),

Gene: Philus\_62 Start: 41088, Stop: 41369, Start Num: 4

Candidate Starts for Philus\_62:

(2, 41061), (Start: 4 @41088 has 59 MA's), (10, 41172), (12, 41181), (15, 41244), (16, 41259), (17, 41271), (18, 41295), (19, 41307), (22, 41361),

Gene: Pollywog\_60 Start: 40759, Stop: 41043, Start Num: 4

Candidate Starts for Pollywog\_60:

(2, 40732), (Start: 4 @40759 has 59 MA's), (6, 40783), (Start: 7 @40798 has 6 MA's), (9, 40843), (11, 40855), (16, 40933), (17, 40945), (18, 40969), (19, 40981), (22, 41035),

Gene: Priscilla\_59 Start: 40022, Stop: 40306, Start Num: 4

Candidate Starts for Priscilla\_59:

(2, 39995), (Start: 4 @40022 has 59 MA's), (6, 40046), (Start: 7 @40061 has 6 MA's), (9, 40106), (11, 40118), (16, 40196), (17, 40208), (18, 40232), (19, 40244), (22, 40298),

Gene: QuickMath\_61 Start: 42034, Stop: 42315, Start Num: 4

Candidate Starts for QuickMath\_61:

(1, 41998), (Start: 4 @42034 has 59 MA's), (6, 42058), (9, 42115), (11, 42127), (16, 42205), (17, 42217), (18, 42241), (19, 42253), (22, 42307),

Gene: Rialto\_65 Start: 42826, Stop: 43110, Start Num: 4

Candidate Starts for Rialto\_65:



(2, 42799), (Start: 4 @42826 has 59 MA's), (6, 42850), (Start: 7 @42865 has 6 MA's), (9, 42910), (11, 42922), (16, 43000), (17, 43012), (18, 43036), (19, 43048), (22, 43102),

Gene: Rita\_60 Start: 38653, Stop: 38937, Start Num: 4

Candidate Starts for Rita\_60:

(2, 38626), (Start: 4 @38653 has 59 MA's), (6, 38677), (Start: 7 @38692 has 6 MA's), (9, 38737), (11, 38749), (16, 38827), (17, 38839), (18, 38863), (19, 38875), (22, 38929),

Gene: Rockne\_60 Start: 40562, Stop: 40846, Start Num: 4

Candidate Starts for Rockne\_60:

(2, 40535), (Start: 4 @40562 has 59 MA's), (6, 40586), (Start: 7 @40601 has 6 MA's), (9, 40646), (11, 40658), (16, 40736), (17, 40748), (18, 40772), (19, 40784), (22, 40838),

Gene: Ronaldo\_96 Start: 48347, Stop: 48652, Start Num: 7

Candidate Starts for Ronaldo\_96:

(Start: 7 @48347 has 6 MA's), (8, 48380), (20, 48581), (23, 48605),

Gene: SG4\_56 Start: 39440, Stop: 39724, Start Num: 4

Candidate Starts for SG4\_56:

(Start: 4 @39440 has 59 MA's), (6, 39464), (Start: 7 @39479 has 6 MA's), (9, 39524), (11, 39536), (16, 39614), (17, 39626), (18, 39650), (19, 39662), (22, 39716),

Gene: Scottish\_57 Start: 39568, Stop: 39852, Start Num: 4

Candidate Starts for Scottish\_57:

(2, 39541), (Start: 4 @39568 has 59 MA's), (6, 39592), (Start: 7 @39607 has 6 MA's), (9, 39652), (11, 39664), (16, 39742), (17, 39754), (18, 39778), (19, 39790), (22, 39844),

Gene: ShiLan\_58 Start: 39969, Stop: 40253, Start Num: 4

Candidate Starts for ShiLan\_58:

(2, 39942), (Start: 4 @39969 has 59 MA's), (6, 39993), (Start: 7 @40008 has 6 MA's), (9, 40053), (11, 40065), (16, 40143), (17, 40155), (18, 40179), (19, 40191), (22, 40245),

Gene: SiSi\_57 Start: 39342, Stop: 39626, Start Num: 4

Candidate Starts for SiSi\_57:

(2, 39315), (Start: 4 @39342 has 59 MA's), (6, 39366), (Start: 7 @39381 has 6 MA's), (9, 39426), (11, 39438), (16, 39516), (17, 39528), (18, 39552), (19, 39564), (22, 39618),

Gene: Soul22\_65 Start: 41527, Stop: 41811, Start Num: 4

Candidate Starts for Soul22\_65:

(2, 41500), (Start: 4 @41527 has 59 MA's), (6, 41551), (Start: 7 @41566 has 6 MA's), (9, 41611), (11, 41623), (16, 41701), (17, 41713), (18, 41737), (19, 41749), (22, 41803),

Gene: Squiddly\_71 Start: 45719, Stop: 45979, Start Num: 5

Candidate Starts for Squiddly\_71:

(3, 45680), (Start: 5 @45719 has 1 MA's), (8, 45782), (9, 45794), (14, 45851), (17, 45896), (21, 45971),

Gene: Tootsieroll\_60 Start: 39265, Stop: 39549, Start Num: 4

Candidate Starts for Tootsieroll\_60:

(2, 39238), (Start: 4 @39265 has 59 MA's), (6, 39289), (Start: 7 @39304 has 6 MA's), (9, 39349), (11, 39361), (16, 39439), (17, 39451), (18, 39475), (19, 39487), (22, 39541),

Gene: Totinger\_58 Start: 39195, Stop: 39479, Start Num: 4

Candidate Starts for Totinger\_58:

(2, 39168), (Start: 4 @39195 has 59 MA's), (6, 39219), (Start: 7 @39234 has 6 MA's), (9, 39279), (11, 39291), (16, 39369), (17, 39381), (18, 39405), (19, 39417), (22, 39471),

Gene: UncleRicky\_58 Start: 40176, Stop: 40460, Start Num: 4

Candidate Starts for UncleRicky\_58:

(2, 40149), (Start: 4 @40176 has 59 MA's), (6, 40200), (Start: 7 @40215 has 6 MA's), (9, 40260), (11, 40272), (16, 40350), (17, 40362), (18, 40386), (19, 40398), (22, 40452),

Gene: Veteran\_56 Start: 38956, Stop: 39237, Start Num: 4

Candidate Starts for Veteran\_56:

(2, 38929), (Start: 4 @38956 has 59 MA's), (10, 39040), (12, 39049), (16, 39127), (17, 39139), (18, 39163), (19, 39175), (22, 39229),

Gene: Volt\_97 Start: 48511, Stop: 48816, Start Num: 7

Candidate Starts for Volt\_97:

(Start: 7 @48511 has 6 MA's), (8, 48544), (20, 48745), (23, 48769),

Gene: Zapner\_72 Start: 41849, Stop: 42133, Start Num: 4

Candidate Starts for Zapner\_72:

(2, 41822), (Start: 4 @41849 has 59 MA's), (6, 41873), (Start: 7 @41888 has 6 MA's), (9, 41933), (11, 41945), (16, 42023), (17, 42035), (18, 42059), (19, 42071), (22, 42125),

Gene: Zerg\_59 Start: 39720, Stop: 40004, Start Num: 4

Candidate Starts for Zerg\_59:

(2, 39693), (Start: 4 @39720 has 59 MA's), (6, 39744), (Start: 7 @39759 has 6 MA's), (9, 39804), (11, 39816), (16, 39894), (17, 39906), (18, 39930), (19, 39942), (22, 39996),

Gene: Ziko\_96 Start: 48332, Stop: 48637, Start Num: 7

Candidate Starts for Ziko\_96:

(Start: 7 @48332 has 6 MA's), (8, 48365), (20, 48566), (23, 48590),

Gene: Zizzle\_63 Start: 41563, Stop: 41847, Start Num: 4

Candidate Starts for Zizzle\_63:

(2, 41536), (Start: 4 @41563 has 59 MA's), (6, 41587), (Start: 7 @41602 has 6 MA's), (9, 41647), (11, 41659), (16, 41737), (17, 41749), (18, 41773), (19, 41785), (22, 41839),