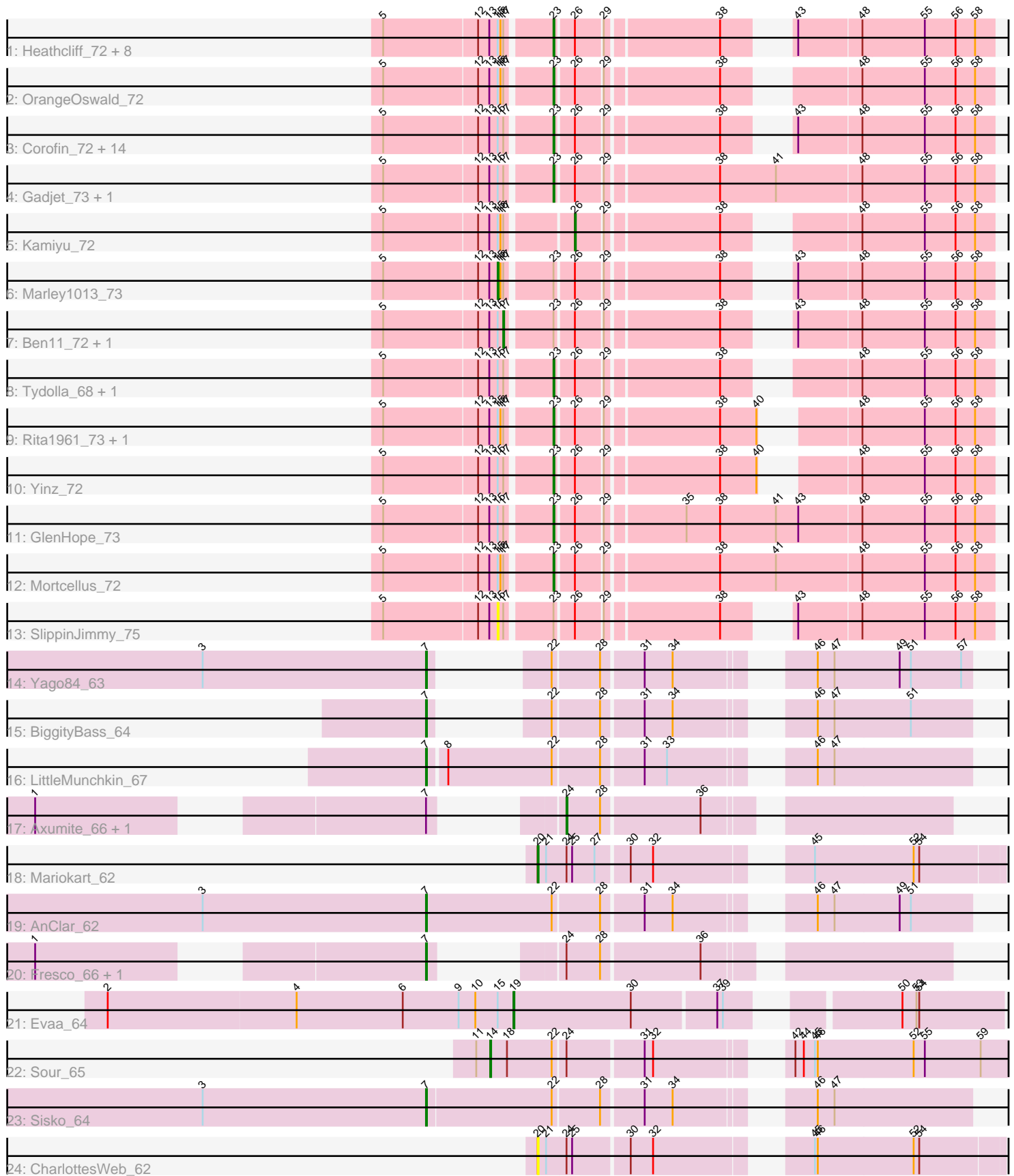


# Pham 163657



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 163657 Report

This analysis was run 05/04/24 on database version 560.

Pham number 163657 has 52 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Heathcliff\_72, Audrey\_72, Morty007\_71, Phaedrus\_67, Phlyer\_72, MmasiCarm\_73, Pipefish\_75, Bernardo\_73, Yahalom\_70
- Track 2 : OrangeOswald\_72
- Track 3 : Corofin\_72, Baloo\_71, Athena\_74, Daisy\_71, HarveySr\_71, Abinghost\_72, RomaT\_72, Casbah\_72, Kronus\_72, Akoma\_72, Nozo\_72, Jackstina\_68, Neos5\_72, SynergyX\_72, ChaChing\_72
- Track 4 : Gadget\_73, Gervas\_73
- Track 5 : Kamiyu\_72
- Track 6 : Marley1013\_73
- Track 7 : Ben11\_72, Devonte\_71
- Track 8 : Tydolla\_68, Obutu\_74
- Track 9 : Rita1961\_73, Phayeta\_75
- Track 10 : Yinz\_72
- Track 11 : GlenHope\_73
- Track 12 : Mortcellus\_72
- Track 13 : SlippinJimmy\_75
- Track 14 : Yago84\_63
- Track 15 : BiggityBass\_64
- Track 16 : LittleMunchkin\_67
- Track 17 : Axumite\_66, Shatter\_66
- Track 18 : Mariokart\_62
- Track 19 : AnClar\_62
- Track 20 : Fresco\_66, Ligma\_66
- Track 21 : Evaa\_64
- Track 22 : Sour\_65
- Track 23 : Sisko\_64
- Track 24 : CharlottesWeb\_62

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

The start number called the most often in the published annotations is 23, it was called in 34 of the 47 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost\_72, Akoma\_72, Athena\_74, Audrey\_72, Baloo\_71, Bernardo\_73, Casbah\_72, ChaChing\_72, Corofin\_72, Daisy\_71, Gadget\_73, Gervas\_73, GlenHope\_73, HarveySr\_71, Heathcliff\_72, Jackstina\_68, Kronus\_72, MmasiCarm\_73, Mortcellus\_72, Morty007\_71, Neos5\_72, Nozo\_72, Obutu\_74, OrangeOswald\_72, Phaedruss\_67, Phayeta\_75, Phlyer\_72, Pipefish\_75, Rita1961\_73, RomaT\_72, SynergyX\_72, Tydolla\_68, Yahalom\_70, Yinz\_72,

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

- Ben11\_72, Devonte\_71, Marley1013\_73, SlippinJimmy\_75,

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

- AnClar\_62, Axumite\_66, BiggityBass\_64, CharlottesWeb\_62, Evaa\_64, Fresco\_66, Kamiyu\_72, Ligma\_66, LittleMunchkin\_67, Mariokart\_62, Shatter\_66, Sisko\_64, Sour\_65, Yago84\_63,

### Summary by start number:

Start 7:

- Found in 9 of 52 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 6 of 47
- Called 77.8% of time when present
- Phage (with cluster) where this start called: AnClar\_62 (DR), BiggityBass\_64 (DR), Fresco\_66 (DR), Ligma\_66 (DR), LittleMunchkin\_67 (DR), Sisko\_64 (DR), Yago84\_63 (DR),

Start 14:

- Found in 1 of 52 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sour\_65 (DR),

Start 15:

- Found in 40 of 52 ( 76.9% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 5.0% of time when present
- Phage (with cluster) where this start called: Marley1013\_73 (B3), SlippinJimmy\_75 (B3),

Start 17:

- Found in 39 of 52 ( 75.0% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 5.1% of time when present
- Phage (with cluster) where this start called: Ben11\_72 (B3), Devonte\_71 (B3),

Start 19:

- Found in 1 of 52 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Evaa\_64 (DR),

Start 20:

- Found in 2 of 52 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 1 of 47

- Called 100.0% of time when present
- Phage (with cluster) where this start called: CharlottesWeb\_62 (DR), Mariokart\_62 (DR),

#### Start 23:

- Found in 38 of 52 ( 73.1% ) of genes in pham
- Manual Annotations of this start: 34 of 47
- Called 89.5% of time when present
- Phage (with cluster) where this start called: Abinghost\_72 (B3), Akoma\_72 (B3), Athena\_74 (B3), Audrey\_72 (B3), Baloo\_71 (B3), Bernardo\_73 (B3), Casbah\_72 (B3), ChaChing\_72 (B3), Corofin\_72 (B3), Daisy\_71 (B3), Gadget\_73 (B3), Gervas\_73 (B3), GlenHope\_73 (B3), HarveySr\_71 (B3), Heathcliff\_72 (B3), Jackstina\_68 (B3), Kronus\_72 (B3), MmasiCarm\_73 (B3), Mortcellus\_72 (B3), Morty007\_71 (B3), Neos5\_72 (B3), Nozo\_72 (B3), Obutu\_74 (B3), OrangeOswald\_72 (B3), Phaedrus\_67 (B3), Phayeta\_75 (B3), Phlyer\_72 (B3), Pipefish\_75 (B3), Rita1961\_73 (B3), RomaT\_72 (B3), SynergyX\_72 (B3), Tydolla\_68 (B3), Yahalom\_70 (B3), Yinz\_72 (B3),

#### Start 24:

- Found in 7 of 52 ( 13.5% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 28.6% of time when present
- Phage (with cluster) where this start called: Axumite\_66 (DR), Shatter\_66 (DR),

#### Start 26:

- Found in 39 of 52 ( 75.0% ) of genes in pham
- Manual Annotations of this start: 1 of 47
- Called 2.6% of time when present
- Phage (with cluster) where this start called: Kamiyu\_72 (B3),

### Summary by clusters:

There are 2 clusters represented in this pham: DR, B3,

#### Info for manual annotations of cluster B3:

- Start number 15 was manually annotated 1 time for cluster B3.
- Start number 17 was manually annotated 1 time for cluster B3.
- Start number 23 was manually annotated 34 times for cluster B3.
- Start number 26 was manually annotated 1 time for cluster B3.

#### Info for manual annotations of cluster DR:

- Start number 7 was manually annotated 6 times for cluster DR.
- Start number 14 was manually annotated 1 time for cluster DR.
- Start number 19 was manually annotated 1 time for cluster DR.
- Start number 20 was manually annotated 1 time for cluster DR.
- Start number 24 was manually annotated 1 time for cluster DR.

### Gene Information:

Gene: Abinghost\_72 Start: 58483, Stop: 58887, Start Num: 23

Candidate Starts for Abinghost\_72:

(5, 58312), (12, 58411), (13, 58423), (Start: 15 @58432 has 1 MA's), (Start: 17 @58438 has 1 MA's), (Start: 23 @58483 has 34 MA's), (Start: 26 @58501 has 1 MA's), (29, 58528), (38, 58642), (43, 58681), (48, 58747), (55, 58813), (56, 58846), (58, 58867),

Gene: Akoma\_72 Start: 58523, Stop: 58927, Start Num: 23

Candidate Starts for Akoma\_72:

(5, 58352), (12, 58451), (13, 58463), (Start: 15 @58472 has 1 MA's), (Start: 17 @58478 has 1 MA's), (Start: 23 @58523 has 34 MA's), (Start: 26 @58541 has 1 MA's), (29, 58568), (38, 58682), (43, 58721), (48, 58787), (55, 58853), (56, 58886), (58, 58907),

Gene: AnClar\_62 Start: 53383, Stop: 53910, Start Num: 7

Candidate Starts for AnClar\_62:

(3, 53143), (Start: 7 @53383 has 6 MA's), (22, 53518), (28, 53566), (31, 53608), (34, 53638), (46, 53746), (47, 53764), (49, 53833), (51, 53845),

Gene: Athena\_74 Start: 59258, Stop: 59662, Start Num: 23

Candidate Starts for Athena\_74:

(5, 59087), (12, 59186), (13, 59198), (Start: 15 @59207 has 1 MA's), (Start: 17 @59213 has 1 MA's), (Start: 23 @59258 has 34 MA's), (Start: 26 @59276 has 1 MA's), (29, 59303), (38, 59417), (43, 59456), (48, 59522), (55, 59588), (56, 59621), (58, 59642),

Gene: Audrey\_72 Start: 58522, Stop: 58926, Start Num: 23

Candidate Starts for Audrey\_72:

(5, 58351), (12, 58450), (13, 58462), (Start: 15 @58471 has 1 MA's), (16, 58474), (Start: 17 @58477 has 1 MA's), (Start: 23 @58522 has 34 MA's), (Start: 26 @58540 has 1 MA's), (29, 58567), (38, 58681), (43, 58720), (48, 58786), (55, 58852), (56, 58885), (58, 58906),

Gene: Axumite\_66 Start: 52194, Stop: 52562, Start Num: 24

Candidate Starts for Axumite\_66:

(1, 51795), (Start: 7 @52140 has 6 MA's), (Start: 24 @52194 has 1 MA's), (28, 52230), (36, 52332),

Gene: Baloo\_71 Start: 58355, Stop: 58759, Start Num: 23

Candidate Starts for Baloo\_71:

(5, 58184), (12, 58283), (13, 58295), (Start: 15 @58304 has 1 MA's), (Start: 17 @58310 has 1 MA's), (Start: 23 @58355 has 34 MA's), (Start: 26 @58373 has 1 MA's), (29, 58400), (38, 58514), (43, 58553), (48, 58619), (55, 58685), (56, 58718), (58, 58739),

Gene: Ben11\_72 Start: 58695, Stop: 59144, Start Num: 17

Candidate Starts for Ben11\_72:

(5, 58569), (12, 58668), (13, 58680), (Start: 15 @58689 has 1 MA's), (Start: 17 @58695 has 1 MA's), (Start: 23 @58740 has 34 MA's), (Start: 26 @58758 has 1 MA's), (29, 58785), (38, 58899), (43, 58938), (48, 59004), (55, 59070), (56, 59103), (58, 59124),

Gene: Bernardo\_73 Start: 58721, Stop: 59125, Start Num: 23

Candidate Starts for Bernardo\_73:

(5, 58550), (12, 58649), (13, 58661), (Start: 15 @58670 has 1 MA's), (16, 58673), (Start: 17 @58676 has 1 MA's), (Start: 23 @58721 has 34 MA's), (Start: 26 @58739 has 1 MA's), (29, 58766), (38, 58880), (43, 58919), (48, 58985), (55, 59051), (56, 59084), (58, 59105),

Gene: BiggityBass\_64 Start: 53929, Stop: 54360, Start Num: 7

Candidate Starts for BiggityBass\_64:

(Start: 7 @53929 has 6 MA's), (22, 53968), (28, 54016), (31, 54058), (34, 54088), (46, 54196), (47, 54214), (51, 54295),

Gene: Casbah\_72 Start: 58842, Stop: 59246, Start Num: 23

Candidate Starts for Casbah\_72:

(5, 58671), (12, 58770), (13, 58782), (Start: 15 @58791 has 1 MA's), (Start: 17 @58797 has 1 MA's), (Start: 23 @58842 has 34 MA's), (Start: 26 @58860 has 1 MA's), (29, 58887), (38, 59001), (43, 59040), (48, 59106), (55, 59172), (56, 59205), (58, 59226),

Gene: ChaChing\_72 Start: 58540, Stop: 58944, Start Num: 23

Candidate Starts for ChaChing\_72:

(5, 58369), (12, 58468), (13, 58480), (Start: 15 @58489 has 1 MA's), (Start: 17 @58495 has 1 MA's), (Start: 23 @58540 has 34 MA's), (Start: 26 @58558 has 1 MA's), (29, 58585), (38, 58699), (43, 58738), (48, 58804), (55, 58870), (56, 58903), (58, 58924),

Gene: CharlottesWeb\_62 Start: 50751, Stop: 51290, Start Num: 20

Candidate Starts for CharlottesWeb\_62:

(Start: 20 @50751 has 1 MA's), (21, 50760), (Start: 24 @50781 has 1 MA's), (25, 50787), (30, 50844), (32, 50868), (45, 50997), (46, 51000), (52, 51102), (54, 51108),

Gene: Corofin\_72 Start: 58553, Stop: 58957, Start Num: 23

Candidate Starts for Corofin\_72:

(5, 58382), (12, 58481), (13, 58493), (Start: 15 @58502 has 1 MA's), (Start: 17 @58508 has 1 MA's), (Start: 23 @58553 has 34 MA's), (Start: 26 @58571 has 1 MA's), (29, 58598), (38, 58712), (43, 58751), (48, 58817), (55, 58883), (56, 58916), (58, 58937),

Gene: Daisy\_71 Start: 58086, Stop: 58490, Start Num: 23

Candidate Starts for Daisy\_71:

(5, 57915), (12, 58014), (13, 58026), (Start: 15 @58035 has 1 MA's), (Start: 17 @58041 has 1 MA's), (Start: 23 @58086 has 34 MA's), (Start: 26 @58104 has 1 MA's), (29, 58131), (38, 58245), (43, 58284), (48, 58350), (55, 58416), (56, 58449), (58, 58470),

Gene: Devonte\_71 Start: 58120, Stop: 58569, Start Num: 17

Candidate Starts for Devonte\_71:

(5, 57994), (12, 58093), (13, 58105), (Start: 15 @58114 has 1 MA's), (Start: 17 @58120 has 1 MA's), (Start: 23 @58165 has 34 MA's), (Start: 26 @58183 has 1 MA's), (29, 58210), (38, 58324), (43, 58363), (48, 58429), (55, 58495), (56, 58528), (58, 58549),

Gene: Evaa\_64 Start: 51047, Stop: 51514, Start Num: 19

Candidate Starts for Evaa\_64:

(2, 50615), (4, 50816), (6, 50930), (9, 50990), (10, 51008), (Start: 15 @51032 has 1 MA's), (Start: 19 @51047 has 1 MA's), (30, 51173), (37, 51260), (39, 51266), (50, 51407), (53, 51422), (54, 51425),

Gene: Fresco\_66 Start: 52146, Stop: 52568, Start Num: 7

Candidate Starts for Fresco\_66:

(1, 51801), (Start: 7 @52146 has 6 MA's), (Start: 24 @52200 has 1 MA's), (28, 52236), (36, 52338),

Gene: Gadget\_73 Start: 58853, Stop: 59302, Start Num: 23

Candidate Starts for Gadget\_73:

(5, 58682), (12, 58781), (13, 58793), (Start: 15 @58802 has 1 MA's), (Start: 17 @58808 has 1 MA's), (Start: 23 @58853 has 34 MA's), (Start: 26 @58871 has 1 MA's), (29, 58898), (38, 59012), (41, 59072), (48, 59162), (55, 59228), (56, 59261), (58, 59282),

Gene: Gervas\_73 Start: 58947, Stop: 59396, Start Num: 23

Candidate Starts for Gervas\_73:

(5, 58776), (12, 58875), (13, 58887), (Start: 15 @58896 has 1 MA's), (Start: 17 @58902 has 1 MA's), (Start: 23 @58947 has 34 MA's), (Start: 26 @58965 has 1 MA's), (29, 58992), (38, 59106), (41, 59166), (48, 59256), (55, 59322), (56, 59355), (58, 59376),

Gene: GlenHope\_73 Start: 58513, Stop: 58962, Start Num: 23

Candidate Starts for GlenHope\_73:

(5, 58342), (12, 58441), (13, 58453), (Start: 15 @58462 has 1 MA's), (Start: 17 @58468 has 1 MA's), (Start: 23 @58513 has 34 MA's), (Start: 26 @58531 has 1 MA's), (29, 58558), (35, 58636), (38, 58672), (41, 58732), (43, 58756), (48, 58822), (55, 58888), (56, 58921), (58, 58942),

Gene: HarveySr\_71 Start: 58069, Stop: 58473, Start Num: 23

Candidate Starts for HarveySr\_71:

(5, 57898), (12, 57997), (13, 58009), (Start: 15 @58018 has 1 MA's), (Start: 17 @58024 has 1 MA's), (Start: 23 @58069 has 34 MA's), (Start: 26 @58087 has 1 MA's), (29, 58114), (38, 58228), (43, 58267), (48, 58333), (55, 58399), (56, 58432), (58, 58453),

Gene: Heathcliff\_72 Start: 58480, Stop: 58884, Start Num: 23

Candidate Starts for Heathcliff\_72:

(5, 58309), (12, 58408), (13, 58420), (Start: 15 @58429 has 1 MA's), (16, 58432), (Start: 17 @58435 has 1 MA's), (Start: 23 @58480 has 34 MA's), (Start: 26 @58498 has 1 MA's), (29, 58525), (38, 58639), (43, 58678), (48, 58744), (55, 58810), (56, 58843), (58, 58864),

Gene: Jackstina\_68 Start: 58405, Stop: 58809, Start Num: 23

Candidate Starts for Jackstina\_68:

(5, 58234), (12, 58333), (13, 58345), (Start: 15 @58354 has 1 MA's), (Start: 17 @58360 has 1 MA's), (Start: 23 @58405 has 34 MA's), (Start: 26 @58423 has 1 MA's), (29, 58450), (38, 58564), (43, 58603), (48, 58669), (55, 58735), (56, 58768), (58, 58789),

Gene: Kamiyu\_72 Start: 58500, Stop: 58886, Start Num: 26

Candidate Starts for Kamiyu\_72:

(5, 58311), (12, 58410), (13, 58422), (Start: 15 @58431 has 1 MA's), (16, 58434), (Start: 17 @58437 has 1 MA's), (Start: 26 @58500 has 1 MA's), (29, 58527), (38, 58641), (48, 58746), (55, 58812), (56, 58845), (58, 58866),

Gene: Kronus\_72 Start: 59578, Stop: 59982, Start Num: 23

Candidate Starts for Kronus\_72:

(5, 59407), (12, 59506), (13, 59518), (Start: 15 @59527 has 1 MA's), (Start: 17 @59533 has 1 MA's), (Start: 23 @59578 has 34 MA's), (Start: 26 @59596 has 1 MA's), (29, 59623), (38, 59737), (43, 59776), (48, 59842), (55, 59908), (56, 59941), (58, 59962),

Gene: Ligma\_66 Start: 52140, Stop: 52562, Start Num: 7

Candidate Starts for Ligma\_66:

(1, 51795), (Start: 7 @52140 has 6 MA's), (Start: 24 @52194 has 1 MA's), (28, 52230), (36, 52332),

Gene: LittleMunchkin\_67 Start: 55005, Stop: 55526, Start Num: 7

Candidate Starts for LittleMunchkin\_67:

(Start: 7 @55005 has 6 MA's), (8, 55023), (22, 55134), (28, 55182), (31, 55224), (33, 55248), (46, 55362), (47, 55380),

Gene: Mariokart\_62 Start: 51036, Stop: 51575, Start Num: 20

Candidate Starts for Mariokart\_62:

(Start: 20 @51036 has 1 MA's), (21, 51045), (Start: 24 @51066 has 1 MA's), (25, 51072), (27, 51096), (30, 51129), (32, 51153), (45, 51282), (52, 51387), (54, 51393),

Gene: Marley1013\_73 Start: 59379, Stop: 59834, Start Num: 15

Candidate Starts for Marley1013\_73:

(5, 59259), (12, 59358), (13, 59370), (Start: 15 @59379 has 1 MA's), (16, 59382), (Start: 17 @59385 has 1 MA's), (Start: 23 @59430 has 34 MA's), (Start: 26 @59448 has 1 MA's), (29, 59475), (38, 59589), (43, 59628), (48, 59694), (55, 59760), (56, 59793), (58, 59814),

Gene: MmasiCarm\_73 Start: 58933, Stop: 59337, Start Num: 23

Candidate Starts for MmasiCarm\_73:

(5, 58762), (12, 58861), (13, 58873), (Start: 15 @58882 has 1 MA's), (16, 58885), (Start: 17 @58888 has 1 MA's), (Start: 23 @58933 has 34 MA's), (Start: 26 @58951 has 1 MA's), (29, 58978), (38, 59092), (43, 59131), (48, 59197), (55, 59263), (56, 59296), (58, 59317),

Gene: Mortcellus\_72 Start: 59595, Stop: 60044, Start Num: 23

Candidate Starts for Mortcellus\_72:

(5, 59424), (12, 59523), (13, 59535), (Start: 15 @59544 has 1 MA's), (16, 59547), (Start: 17 @59550 has 1 MA's), (Start: 23 @59595 has 34 MA's), (Start: 26 @59613 has 1 MA's), (29, 59640), (38, 59754), (41, 59814), (48, 59904), (55, 59970), (56, 60003), (58, 60024),

Gene: Morty007\_71 Start: 59430, Stop: 59834, Start Num: 23

Candidate Starts for Morty007\_71:

(5, 59259), (12, 59358), (13, 59370), (Start: 15 @59379 has 1 MA's), (16, 59382), (Start: 17 @59385 has 1 MA's), (Start: 23 @59430 has 34 MA's), (Start: 26 @59448 has 1 MA's), (29, 59475), (38, 59589), (43, 59628), (48, 59694), (55, 59760), (56, 59793), (58, 59814),

Gene: Neos5\_72 Start: 58892, Stop: 59296, Start Num: 23

Candidate Starts for Neos5\_72:

(5, 58721), (12, 58820), (13, 58832), (Start: 15 @58841 has 1 MA's), (Start: 17 @58847 has 1 MA's), (Start: 23 @58892 has 34 MA's), (Start: 26 @58910 has 1 MA's), (29, 58937), (38, 59051), (43, 59090), (48, 59156), (55, 59222), (56, 59255), (58, 59276),

Gene: Nozo\_72 Start: 59289, Stop: 59693, Start Num: 23

Candidate Starts for Nozo\_72:

(5, 59118), (12, 59217), (13, 59229), (Start: 15 @59238 has 1 MA's), (Start: 17 @59244 has 1 MA's), (Start: 23 @59289 has 34 MA's), (Start: 26 @59307 has 1 MA's), (29, 59334), (38, 59448), (43, 59487), (48, 59553), (55, 59619), (56, 59652), (58, 59673),

Gene: Obutu\_74 Start: 59112, Stop: 59516, Start Num: 23

Candidate Starts for Obutu\_74:

(5, 58941), (12, 59040), (13, 59052), (Start: 15 @59061 has 1 MA's), (Start: 17 @59067 has 1 MA's), (Start: 23 @59112 has 34 MA's), (Start: 26 @59130 has 1 MA's), (29, 59157), (38, 59271), (48, 59376), (55, 59442), (56, 59475), (58, 59496),

Gene: OrangeOswald\_72 Start: 58530, Stop: 58934, Start Num: 23

Candidate Starts for OrangeOswald\_72:

(5, 58359), (12, 58458), (13, 58470), (Start: 15 @58479 has 1 MA's), (16, 58482), (Start: 17 @58485 has 1 MA's), (Start: 23 @58530 has 34 MA's), (Start: 26 @58548 has 1 MA's), (29, 58575), (38, 58689), (48, 58794), (55, 58860), (56, 58893), (58, 58914),

Gene: Phaedrus\_67 Start: 57955, Stop: 58359, Start Num: 23

Candidate Starts for Phaedrus\_67:

(5, 57784), (12, 57883), (13, 57895), (Start: 15 @57904 has 1 MA's), (16, 57907), (Start: 17 @57910 has 1 MA's), (Start: 23 @57955 has 34 MA's), (Start: 26 @57973 has 1 MA's), (29, 58000), (38,



58114), (43, 58153), (48, 58219), (55, 58285), (56, 58318), (58, 58339),

Gene: Phayeta\_75 Start: 59016, Stop: 59420, Start Num: 23

Candidate Starts for Phayeta\_75:

(5, 58845), (12, 58944), (13, 58956), (Start: 15 @58965 has 1 MA's), (16, 58968), (Start: 17 @58971 has 1 MA's), (Start: 23 @59016 has 34 MA's), (Start: 26 @59034 has 1 MA's), (29, 59061), (38, 59175), (40, 59214), (48, 59280), (55, 59346), (56, 59379), (58, 59400),

Gene: Phlyer\_72 Start: 59238, Stop: 59642, Start Num: 23

Candidate Starts for Phlyer\_72:

(5, 59067), (12, 59166), (13, 59178), (Start: 15 @59187 has 1 MA's), (16, 59190), (Start: 17 @59193 has 1 MA's), (Start: 23 @59238 has 34 MA's), (Start: 26 @59256 has 1 MA's), (29, 59283), (38, 59397), (43, 59436), (48, 59502), (55, 59568), (56, 59601), (58, 59622),

Gene: Pipefish\_75 Start: 59649, Stop: 60053, Start Num: 23

Candidate Starts for Pipefish\_75:

(5, 59478), (12, 59577), (13, 59589), (Start: 15 @59598 has 1 MA's), (16, 59601), (Start: 17 @59604 has 1 MA's), (Start: 23 @59649 has 34 MA's), (Start: 26 @59667 has 1 MA's), (29, 59694), (38, 59808), (43, 59847), (48, 59913), (55, 59979), (56, 60012), (58, 60033),

Gene: Rita1961\_73 Start: 58888, Stop: 59292, Start Num: 23

Candidate Starts for Rita1961\_73:

(5, 58717), (12, 58816), (13, 58828), (Start: 15 @58837 has 1 MA's), (16, 58840), (Start: 17 @58843 has 1 MA's), (Start: 23 @58888 has 34 MA's), (Start: 26 @58906 has 1 MA's), (29, 58933), (38, 59047), (40, 59086), (48, 59152), (55, 59218), (56, 59251), (58, 59272),

Gene: RomaT\_72 Start: 59089, Stop: 59493, Start Num: 23

Candidate Starts for RomaT\_72:

(5, 58918), (12, 59017), (13, 59029), (Start: 15 @59038 has 1 MA's), (Start: 17 @59044 has 1 MA's), (Start: 23 @59089 has 34 MA's), (Start: 26 @59107 has 1 MA's), (29, 59134), (38, 59248), (43, 59287), (48, 59353), (55, 59419), (56, 59452), (58, 59473),

Gene: Shatter\_66 Start: 52194, Stop: 52562, Start Num: 24

Candidate Starts for Shatter\_66:

(1, 51795), (Start: 7 @52140 has 6 MA's), (Start: 24 @52194 has 1 MA's), (28, 52230), (36, 52332),

Gene: Sisko\_64 Start: 52451, Stop: 52975, Start Num: 7

Candidate Starts for Sisko\_64:

(3, 52211), (Start: 7 @52451 has 6 MA's), (22, 52583), (28, 52631), (31, 52673), (34, 52703), (46, 52811), (47, 52829),

Gene: SlippinJimmy\_75 Start: 59862, Stop: 60317, Start Num: 15

Candidate Starts for SlippinJimmy\_75:

(5, 59742), (12, 59841), (13, 59853), (Start: 15 @59862 has 1 MA's), (Start: 17 @59868 has 1 MA's), (Start: 23 @59913 has 34 MA's), (Start: 26 @59931 has 1 MA's), (29, 59958), (38, 60072), (43, 60111), (48, 60177), (55, 60243), (56, 60276), (58, 60297),

Gene: Sour\_65 Start: 54385, Stop: 54999, Start Num: 14

Candidate Starts for Sour\_65:

(11, 54370), (Start: 14 @54385 has 1 MA's), (18, 54403), (22, 54451), (Start: 24 @54463 has 1 MA's), (31, 54541), (32, 54550), (42, 54655), (44, 54664), (45, 54676), (46, 54679), (52, 54781), (55, 54793), (59, 54853),

Gene: SynergyX\_72 Start: 58527, Stop: 58931, Start Num: 23

Candidate Starts for SynergyX\_72:

(5, 58356), (12, 58455), (13, 58467), (Start: 15 @58476 has 1 MA's), (Start: 17 @58482 has 1 MA's), (Start: 23 @58527 has 34 MA's), (Start: 26 @58545 has 1 MA's), (29, 58572), (38, 58686), (43, 58725), (48, 58791), (55, 58857), (56, 58890), (58, 58911),

Gene: Tydolla\_68 Start: 58518, Stop: 58922, Start Num: 23

Candidate Starts for Tydolla\_68:

(5, 58347), (12, 58446), (13, 58458), (Start: 15 @58467 has 1 MA's), (Start: 17 @58473 has 1 MA's), (Start: 23 @58518 has 34 MA's), (Start: 26 @58536 has 1 MA's), (29, 58563), (38, 58677), (48, 58782), (55, 58848), (56, 58881), (58, 58902),

Gene: Yago84\_63 Start: 51936, Stop: 52367, Start Num: 7

Candidate Starts for Yago84\_63:

(3, 51696), (Start: 7 @51936 has 6 MA's), (22, 51975), (28, 52023), (31, 52065), (34, 52095), (46, 52203), (47, 52221), (49, 52290), (51, 52302), (57, 52356),

Gene: Yahalom\_70 Start: 58332, Stop: 58736, Start Num: 23

Candidate Starts for Yahalom\_70:

(5, 58161), (12, 58260), (13, 58272), (Start: 15 @58281 has 1 MA's), (16, 58284), (Start: 17 @58287 has 1 MA's), (Start: 23 @58332 has 34 MA's), (Start: 26 @58350 has 1 MA's), (29, 58377), (38, 58491), (43, 58530), (48, 58596), (55, 58662), (56, 58695), (58, 58716),

Gene: Yinz\_72 Start: 58397, Stop: 58801, Start Num: 23

Candidate Starts for Yinz\_72:

(5, 58226), (12, 58325), (13, 58337), (Start: 15 @58346 has 1 MA's), (Start: 17 @58352 has 1 MA's), (Start: 23 @58397 has 34 MA's), (Start: 26 @58415 has 1 MA's), (29, 58442), (38, 58556), (40, 58595), (48, 58661), (55, 58727), (56, 58760), (58, 58781),