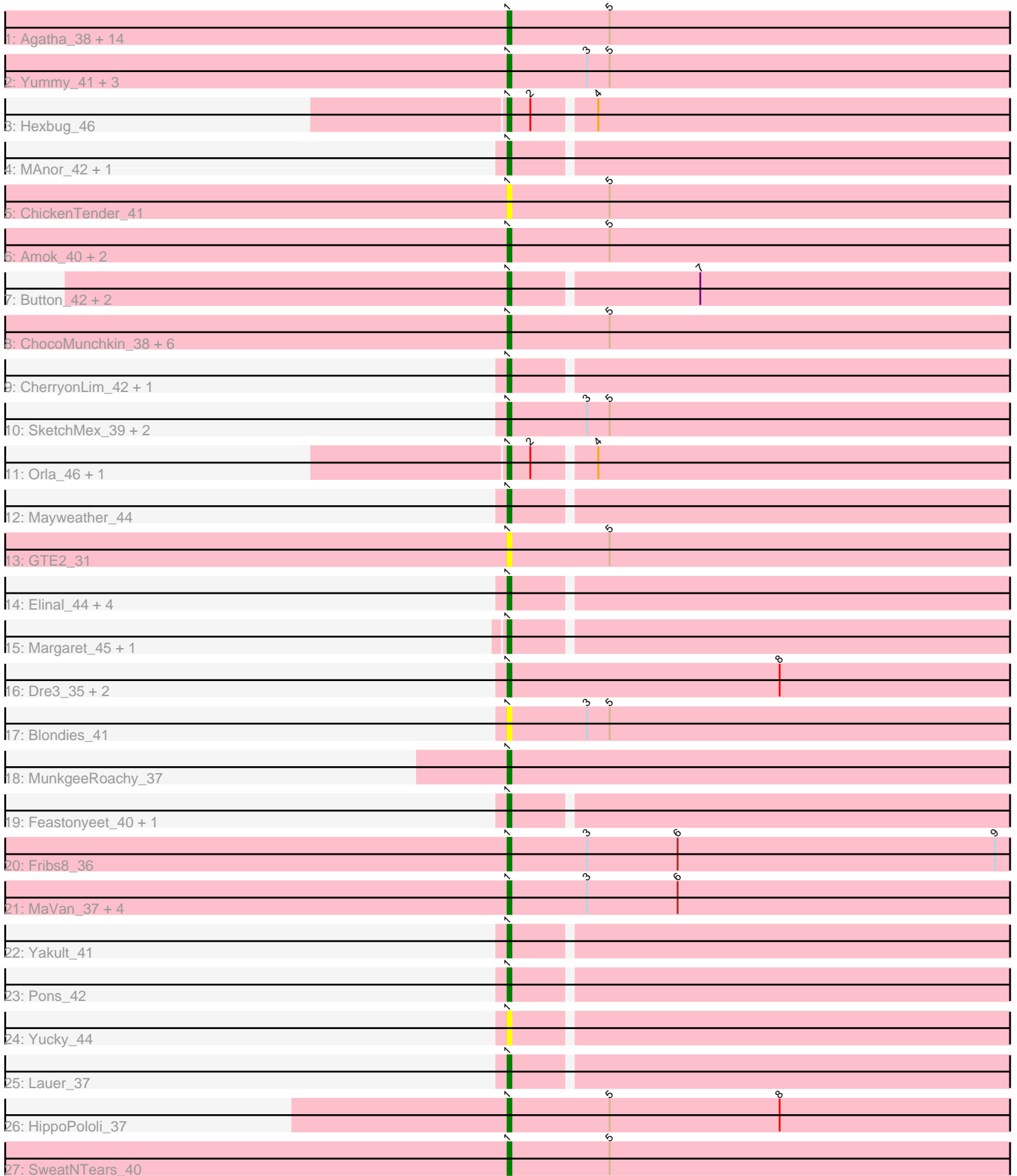


# Zoomed Pham 221401



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 221401 Report

This analysis was run 03/28/25 on database version 593.

Pham number 221401 has 71 members, 17 are drafts.

Phages represented in each track:

- Track 1 : Agatha\_38, Elliott\_39, Nina\_38, Cozz\_37, Quasar\_39, RedBaron\_41, PsychoKiller\_38, Sopespian\_38, Typhonmarchy\_38, Axym\_38, GoldHunter\_40, Burnsey\_38, Carsonalex\_42, Socotra\_40, Starburst\_40
- Track 2 : Yummy\_41, Buttrmlkdreams\_41, MScarn\_42, Horseradish\_41
- Track 3 : Hexbug\_46
- Track 4 : MAnor\_42, PotPie\_41
- Track 5 : ChickenTender\_41
- Track 6 : Amok\_40, AikoCarson\_40, Emalyn\_39
- Track 7 : Button\_42, GiKK\_44, Jamzy\_44
- Track 8 : ChocoMunchkin\_38, Yarn\_36, Tolls\_40, CanesSauce\_38, BillDoor\_39, AndPeggy\_36, SteamedHams\_40
- Track 9 : CherryonLim\_42, SheckWes\_43
- Track 10 : SketchMex\_39, Troje\_41, Biskit\_41
- Track 11 : Orla\_46, Nodigi\_46
- Track 12 : Mayweather\_44
- Track 13 : GTE2\_31
- Track 14 : Elinal\_44, KayGee\_42, Vine\_43, Bavidard\_40, SummitAcademy\_40
- Track 15 : Margaret\_45, RanchParmCat\_44
- Track 16 : Dre3\_35, Cleo\_35, Gibbous\_35
- Track 17 : Blondies\_41
- Track 18 : MunkgeeRoachy\_37
- Track 19 : Feastonyeet\_40, BigChungus\_40
- Track 20 : Fribs8\_36
- Track 21 : MaVan\_37, Nibbles\_36, Zareef\_39, Survivors\_37, Azira\_37
- Track 22 : Yakult\_41
- Track 23 : Pons\_42
- Track 24 : Yucky\_44
- Track 25 : Lauer\_37
- Track 26 : HippoPololi\_37
- Track 27 : SweatNTears\_40

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

The start number called the most often in the published annotations is 1, it was called in 54 of the 54 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_38, AikoCarson\_40, Amok\_40, AndPeggy\_36, Axym\_38, Azira\_37, Bavidard\_40, BigChungus\_40, BillDoor\_39, Biskit\_41, Blondies\_41, Burnsey\_38, Button\_42, Buttrmlkdreams\_41, CanesSauce\_38, Carsonalex\_42, CherryonLim\_42, ChickenTender\_41, ChocoMunchkin\_38, Cleo\_35, Cozz\_37, Dre3\_35, Elinal\_44, Elliott\_39, Emalyn\_39, Feastonyeet\_40, Fribs8\_36, GTE2\_31, GiKK\_44, Gibbous\_35, GoldHunter\_40, Hexbug\_46, HippoPololi\_37, Horseradish\_41, Jamzy\_44, KayGee\_42, Lauer\_37, MAnor\_42, MScarn\_42, MaVan\_37, Margaret\_45, Mayweather\_44, MunkgeeRoachy\_37, Nibbles\_36, Nina\_38, Nodigi\_46, Orla\_46, Pons\_42, PotPie\_41, PsychoKiller\_38, Quasar\_39, RanchParmCat\_44, RedBaron\_41, SheckWes\_43, SketchMex\_39, Socotra\_40, Sopespian\_38, Starburst\_40, SteamedHams\_40, SummitAcademy\_40, Survivors\_37, SweatNTears\_40, Tolls\_40, Troje\_41, Typhonomachy\_38, Vine\_43, Yakult\_41, Yarn\_36, Yucky\_44, Yummy\_41, Zareef\_39,

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

- 

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

- 

### Summary by start number:

Start 1:

- Found in 71 of 71 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 54 of 54
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Agatha\_38 (CT), AikoCarson\_40 (CT), Amok\_40 (CT), AndPeggy\_36 (CT), Axym\_38 (CT), Azira\_37 (CT), Bavidard\_40 (CT), BigChungus\_40 (CT), BillDoor\_39 (CT), Biskit\_41 (CT), Blondies\_41 (CT), Burnsey\_38 (CT), Button\_42 (CT), Buttrmlkdreams\_41 (CT), CanesSauce\_38 (CT), Carsonalex\_42 (CT), CherryonLim\_42 (CT), ChickenTender\_41 (CT), ChocoMunchkin\_38 (CT), Cleo\_35 (CT), Cozz\_37 (CT), Dre3\_35 (CT), Elinal\_44 (CT), Elliott\_39 (CT), Emalyn\_39 (CT), Feastonyeet\_40 (CT), Fribs8\_36 (CT), GTE2\_31 (CT), GiKK\_44 (CT), Gibbous\_35 (CT), GoldHunter\_40 (CT), Hexbug\_46 (CT), HippoPololi\_37 (CT), Horseradish\_41 (CT), Jamzy\_44 (CT), KayGee\_42 (CT), Lauer\_37 (CT), MAnor\_42 (CT), MScarn\_42 (CT), MaVan\_37 (CT), Margaret\_45 (CT), Mayweather\_44 (CT), MunkgeeRoachy\_37 (CT), Nibbles\_36 (CT), Nina\_38 (CT), Nodigi\_46 (CT), Orla\_46 (CT), Pons\_42 (CT), PotPie\_41 (CT), PsychoKiller\_38 (CT), Quasar\_39 (CT), RanchParmCat\_44 (CT), RedBaron\_41 (CT), SheckWes\_43 (CT), SketchMex\_39 (CT), Socotra\_40 (CT), Sopespian\_38 (CT), Starburst\_40 (CT), SteamedHams\_40 (CT), SummitAcademy\_40 (CT), Survivors\_37 (CT), SweatNTears\_40 (CT), Tolls\_40 (CT), Troje\_41 (CT), Typhonomachy\_38 (CT), Vine\_43 (CT), Yakult\_41 (CT), Yarn\_36 (CT), Yucky\_44 (CT), Yummy\_41 (CT), Zareef\_39 (CT),

### Summary by clusters:

There is one cluster represented in this pham: CT

Info for manual annotations of cluster CT:

•Start number 1 was manually annotated 54 times for cluster CT.

**Gene Information:**

Gene: Agatha\_38 Start: 27790, Stop: 27239, Start Num: 1

Candidate Starts for Agatha\_38:

(Start: 1 @27790 has 54 MA's), (5, 27763), (10, 27649), (22, 27493), (27, 27394),

Gene: AikoCarson\_40 Start: 28146, Stop: 27598, Start Num: 1

Candidate Starts for AikoCarson\_40:

(Start: 1 @28146 has 54 MA's), (5, 28119), (10, 28005), (12, 27951), (18, 27873), (20, 27861), (22, 27849), (30, 27720),

Gene: Amok\_40 Start: 28170, Stop: 27622, Start Num: 1

Candidate Starts for Amok\_40:

(Start: 1 @28170 has 54 MA's), (5, 28143), (10, 28029), (12, 27975), (18, 27897), (20, 27885), (22, 27873), (30, 27744),

Gene: AndPeggy\_36 Start: 27570, Stop: 27022, Start Num: 1

Candidate Starts for AndPeggy\_36:

(Start: 1 @27570 has 54 MA's), (5, 27543), (10, 27429), (12, 27375), (19, 27291), (20, 27285), (22, 27273), (30, 27144),

Gene: Axym\_38 Start: 27768, Stop: 27217, Start Num: 1

Candidate Starts for Axym\_38:

(Start: 1 @27768 has 54 MA's), (5, 27741), (10, 27627), (22, 27471), (27, 27372),

Gene: Azira\_37 Start: 27822, Stop: 27271, Start Num: 1

Candidate Starts for Azira\_37:

(Start: 1 @27822 has 54 MA's), (3, 27801), (6, 27777), (10, 27681), (11, 27642), (14, 27606), (21, 27534), (26, 27438),

Gene: Bavidard\_40 Start: 29201, Stop: 28599, Start Num: 1

Candidate Starts for Bavidard\_40:

(Start: 1 @29201 has 54 MA's), (10, 29063), (14, 28985), (16, 28964), (23, 28895), (29, 28787),

Gene: BigChungus\_40 Start: 29381, Stop: 28782, Start Num: 1

Candidate Starts for BigChungus\_40:

(Start: 1 @29381 has 54 MA's), (10, 29243), (11, 29201), (14, 29165), (29, 28967),

Gene: BillDoor\_39 Start: 27241, Stop: 26699, Start Num: 1

Candidate Starts for BillDoor\_39:

(Start: 1 @27241 has 54 MA's), (5, 27214), (10, 27100), (12, 27046), (19, 26962), (20, 26956), (22, 26944), (30, 26815),

Gene: Biskit\_41 Start: 27935, Stop: 27390, Start Num: 1

Candidate Starts for Biskit\_41:

(Start: 1 @27935 has 54 MA's), (3, 27914), (5, 27908), (17, 27683), (24, 27599),

Gene: Blondies\_41 Start: 28251, Stop: 27706, Start Num: 1

Candidate Starts for Blondies\_41:

(Start: 1 @28251 has 54 MA's), (3, 28230), (5, 28224), (17, 27999), (18, 27978), (24, 27915),

Gene: Burnsey\_38 Start: 27781, Stop: 27230, Start Num: 1

Candidate Starts for Burnsey\_38:

(Start: 1 @27781 has 54 MA's), (5, 27754), (10, 27640), (22, 27484), (27, 27385),

Gene: Button\_42 Start: 28421, Stop: 27879, Start Num: 1

Candidate Starts for Button\_42:

(Start: 1 @28421 has 54 MA's), (7, 28373), (11, 28244), (13, 28226), (15, 28193), (22, 28130), (28, 28019), (30, 28001),

Gene: Buttrmlkdreams\_41 Start: 28267, Stop: 27722, Start Num: 1

Candidate Starts for Buttrmlkdreams\_41:

(Start: 1 @28267 has 54 MA's), (3, 28246), (5, 28240), (17, 28015), (18, 27994), (24, 27931),

Gene: CanesSauce\_38 Start: 27743, Stop: 27195, Start Num: 1

Candidate Starts for CanesSauce\_38:

(Start: 1 @27743 has 54 MA's), (5, 27716), (10, 27602), (12, 27548), (19, 27464), (20, 27458), (22, 27446), (30, 27317),

Gene: Carsonalex\_42 Start: 27818, Stop: 27267, Start Num: 1

Candidate Starts for Carsonalex\_42:

(Start: 1 @27818 has 54 MA's), (5, 27791), (10, 27677), (22, 27521), (27, 27422),

Gene: CherryonLim\_42 Start: 30519, Stop: 29932, Start Num: 1

Candidate Starts for CherryonLim\_42:

(Start: 1 @30519 has 54 MA's), (10, 30381), (11, 30339), (14, 30303), (28, 30114), (29, 30105),

Gene: ChickenTender\_41 Start: 27551, Stop: 27003, Start Num: 1

Candidate Starts for ChickenTender\_41:

(Start: 1 @27551 has 54 MA's), (5, 27524), (10, 27410), (21, 27260), (22, 27254), (24, 27215), (30, 27125),

Gene: ChocoMunchkin\_38 Start: 27743, Stop: 27195, Start Num: 1

Candidate Starts for ChocoMunchkin\_38:

(Start: 1 @27743 has 54 MA's), (5, 27716), (10, 27602), (12, 27548), (19, 27464), (20, 27458), (22, 27446), (30, 27317),

Gene: Cleo\_35 Start: 27367, Stop: 26819, Start Num: 1

Candidate Starts for Cleo\_35:

(Start: 1 @27367 has 54 MA's), (8, 27295), (10, 27226), (14, 27151), (26, 26983), (29, 26953), (30, 26944), (31, 26929),

Gene: Cozz\_37 Start: 27378, Stop: 26827, Start Num: 1

Candidate Starts for Cozz\_37:

(Start: 1 @27378 has 54 MA's), (5, 27351), (10, 27237), (22, 27081), (27, 26982),

Gene: Dre3\_35 Start: 27110, Stop: 26562, Start Num: 1

Candidate Starts for Dre3\_35:

(Start: 1 @27110 has 54 MA's), (8, 27038), (10, 26969), (14, 26894), (26, 26726), (29, 26696), (30, 26687), (31, 26672),

Gene: Elinal\_44 Start: 29769, Stop: 29167, Start Num: 1  
Candidate Starts for Elinal\_44:  
(Start: 1 @29769 has 54 MA's), (10, 29631), (14, 29553), (16, 29532), (23, 29463), (29, 29355),

Gene: Elliott\_39 Start: 27789, Stop: 27238, Start Num: 1  
Candidate Starts for Elliott\_39:  
(Start: 1 @27789 has 54 MA's), (5, 27762), (10, 27648), (22, 27492), (27, 27393),

Gene: Emalyn\_39 Start: 27338, Stop: 26793, Start Num: 1  
Candidate Starts for Emalyn\_39:  
(Start: 1 @27338 has 54 MA's), (5, 27311), (10, 27197), (12, 27143), (18, 27065), (20, 27053), (22, 27041), (30, 26912),

Gene: Feastonyeet\_40 Start: 29381, Stop: 28782, Start Num: 1  
Candidate Starts for Feastonyeet\_40:  
(Start: 1 @29381 has 54 MA's), (10, 29243), (11, 29201), (14, 29165), (29, 28967),

Gene: Fribs8\_36 Start: 27549, Stop: 26995, Start Num: 1  
Candidate Starts for Fribs8\_36:  
(Start: 1 @27549 has 54 MA's), (3, 27528), (6, 27504), (9, 27420), (10, 27408), (11, 27369), (14, 27333), (24, 27216), (26, 27165),

Gene: GTE2\_31 Start: 27554, Stop: 27012, Start Num: 1  
Candidate Starts for GTE2\_31:  
(Start: 1 @27554 has 54 MA's), (5, 27527), (10, 27413), (12, 27359), (20, 27269), (30, 27128),

Gene: GiKK\_44 Start: 28751, Stop: 28209, Start Num: 1  
Candidate Starts for GiKK\_44:  
(Start: 1 @28751 has 54 MA's), (7, 28703), (11, 28574), (13, 28556), (15, 28523), (22, 28460), (28, 28349), (30, 28331),

Gene: Gibbous\_35 Start: 27110, Stop: 26562, Start Num: 1  
Candidate Starts for Gibbous\_35:  
(Start: 1 @27110 has 54 MA's), (8, 27038), (10, 26969), (14, 26894), (26, 26726), (29, 26696), (30, 26687), (31, 26672),

Gene: GoldHunter\_40 Start: 27790, Stop: 27239, Start Num: 1  
Candidate Starts for GoldHunter\_40:  
(Start: 1 @27790 has 54 MA's), (5, 27763), (10, 27649), (22, 27493), (27, 27394),

Gene: Hexbug\_46 Start: 30533, Stop: 29970, Start Num: 1  
Candidate Starts for Hexbug\_46:  
(Start: 1 @30533 has 54 MA's), (2, 30527), (4, 30512), (11, 30353), (13, 30335), (15, 30302), (18, 30263), (28, 30128),

Gene: HippoPololi\_37 Start: 27564, Stop: 27016, Start Num: 1  
Candidate Starts for HippoPololi\_37:  
(Start: 1 @27564 has 54 MA's), (5, 27537), (8, 27492), (10, 27423), (11, 27384), (21, 27276), (24, 27231), (25, 27210), (26, 27180), (29, 27150), (31, 27126),

Gene: Horseradish\_41 Start: 27795, Stop: 27250, Start Num: 1  
Candidate Starts for Horseradish\_41:  
(Start: 1 @27795 has 54 MA's), (3, 27774), (5, 27768), (17, 27543), (18, 27522), (24, 27459),

Gene: Jamzy\_44 Start: 28734, Stop: 28192, Start Num: 1

Candidate Starts for Jamzy\_44:

(Start: 1 @28734 has 54 MA's), (7, 28686), (11, 28557), (13, 28539), (15, 28506), (22, 28443), (28, 28332), (30, 28314),

Gene: KayGee\_42 Start: 29769, Stop: 29167, Start Num: 1

Candidate Starts for KayGee\_42:

(Start: 1 @29769 has 54 MA's), (10, 29631), (14, 29553), (16, 29532), (23, 29463), (29, 29355),

Gene: Lauer\_37 Start: 30578, Stop: 29997, Start Num: 1

Candidate Starts for Lauer\_37:

(Start: 1 @30578 has 54 MA's), (10, 30440), (14, 30362), (28, 30173), (29, 30164),

Gene: MAnor\_42 Start: 30111, Stop: 29515, Start Num: 1

Candidate Starts for MAnor\_42:

(Start: 1 @30111 has 54 MA's), (10, 29973), (11, 29931), (14, 29895), (23, 29805), (29, 29697),

Gene: MScarn\_42 Start: 27935, Stop: 27390, Start Num: 1

Candidate Starts for MScarn\_42:

(Start: 1 @27935 has 54 MA's), (3, 27914), (5, 27908), (17, 27683), (18, 27662), (24, 27599),

Gene: MaVan\_37 Start: 27851, Stop: 27303, Start Num: 1

Candidate Starts for MaVan\_37:

(Start: 1 @27851 has 54 MA's), (3, 27830), (6, 27806), (10, 27710), (11, 27671), (14, 27635), (21, 27563), (26, 27467),

Gene: Margaret\_45 Start: 29479, Stop: 28916, Start Num: 1

Candidate Starts for Margaret\_45:

(Start: 1 @29479 has 54 MA's), (11, 29299), (15, 29248), (18, 29209), (28, 29074), (29, 29065), (31, 29041),

Gene: Mayweather\_44 Start: 30390, Stop: 29791, Start Num: 1

Candidate Starts for Mayweather\_44:

(Start: 1 @30390 has 54 MA's), (10, 30252), (14, 30174), (16, 30153), (23, 30084), (28, 29985), (29, 29976),

Gene: MunkgeeRoachy\_37 Start: 27252, Stop: 26701, Start Num: 1

Candidate Starts for MunkgeeRoachy\_37:

(Start: 1 @27252 has 54 MA's), (10, 27111), (22, 26955), (27, 26856),

Gene: Nibbles\_36 Start: 27538, Stop: 26987, Start Num: 1

Candidate Starts for Nibbles\_36:

(Start: 1 @27538 has 54 MA's), (3, 27517), (6, 27493), (10, 27397), (11, 27358), (14, 27322), (21, 27250), (26, 27154),

Gene: Nina\_38 Start: 27914, Stop: 27363, Start Num: 1

Candidate Starts for Nina\_38:

(Start: 1 @27914 has 54 MA's), (5, 27887), (10, 27773), (22, 27617), (27, 27518),

Gene: Nodigi\_46 Start: 30519, Stop: 29959, Start Num: 1

Candidate Starts for Nodigi\_46:

(Start: 1 @30519 has 54 MA's), (2, 30513), (4, 30498), (11, 30339), (13, 30321), (15, 30288), (18, 30249), (28, 30114), (31, 30081),

Gene: Orla\_46 Start: 30492, Stop: 29932, Start Num: 1

Candidate Starts for Orla\_46:

(Start: 1 @30492 has 54 MA's), (2, 30486), (4, 30471), (11, 30312), (13, 30294), (15, 30261), (18, 30222), (28, 30087), (31, 30054),

Gene: Pons\_42 Start: 29741, Stop: 29139, Start Num: 1

Candidate Starts for Pons\_42:

(Start: 1 @29741 has 54 MA's), (10, 29603), (14, 29525), (23, 29435), (29, 29327),

Gene: PotPie\_41 Start: 30672, Stop: 30073, Start Num: 1

Candidate Starts for PotPie\_41:

(Start: 1 @30672 has 54 MA's), (10, 30534), (11, 30492), (14, 30456), (23, 30366), (29, 30258),

Gene: PsychoKiller\_38 Start: 27790, Stop: 27239, Start Num: 1

Candidate Starts for PsychoKiller\_38:

(Start: 1 @27790 has 54 MA's), (5, 27763), (10, 27649), (22, 27493), (27, 27394),

Gene: Quasar\_39 Start: 28338, Stop: 27787, Start Num: 1

Candidate Starts for Quasar\_39:

(Start: 1 @28338 has 54 MA's), (5, 28311), (10, 28197), (22, 28041), (27, 27942),

Gene: RanchParmCat\_44 Start: 29617, Stop: 29066, Start Num: 1

Candidate Starts for RanchParmCat\_44:

(Start: 1 @29617 has 54 MA's), (11, 29437), (15, 29386), (18, 29347), (28, 29212), (29, 29203), (31, 29179),

Gene: RedBaron\_41 Start: 28027, Stop: 27476, Start Num: 1

Candidate Starts for RedBaron\_41:

(Start: 1 @28027 has 54 MA's), (5, 28000), (10, 27886), (22, 27730), (27, 27631),

Gene: SheckWes\_43 Start: 29265, Stop: 28660, Start Num: 1

Candidate Starts for SheckWes\_43:

(Start: 1 @29265 has 54 MA's), (10, 29127), (11, 29085), (14, 29049), (28, 28860), (29, 28851),

Gene: SketchMex\_39 Start: 27935, Stop: 27390, Start Num: 1

Candidate Starts for SketchMex\_39:

(Start: 1 @27935 has 54 MA's), (3, 27914), (5, 27908), (17, 27683), (24, 27599),

Gene: Socotra\_40 Start: 27789, Stop: 27238, Start Num: 1

Candidate Starts for Socotra\_40:

(Start: 1 @27789 has 54 MA's), (5, 27762), (10, 27648), (22, 27492), (27, 27393),

Gene: Sopespian\_38 Start: 27791, Stop: 27240, Start Num: 1

Candidate Starts for Sopespian\_38:

(Start: 1 @27791 has 54 MA's), (5, 27764), (10, 27650), (22, 27494), (27, 27395),

Gene: Starburst\_40 Start: 27784, Stop: 27233, Start Num: 1

Candidate Starts for Starburst\_40:

(Start: 1 @27784 has 54 MA's), (5, 27757), (10, 27643), (22, 27487), (27, 27388),



Gene: SteamedHams\_40 Start: 27710, Stop: 27168, Start Num: 1  
Candidate Starts for SteamedHams\_40:  
(Start: 1 @27710 has 54 MA's), (5, 27683), (10, 27569), (12, 27515), (19, 27431), (20, 27425), (22, 27413), (30, 27284),

Gene: SummitAcademy\_40 Start: 29301, Stop: 28702, Start Num: 1  
Candidate Starts for SummitAcademy\_40:  
(Start: 1 @29301 has 54 MA's), (10, 29163), (14, 29085), (16, 29064), (23, 28995), (29, 28887),

Gene: Survivors\_37 Start: 27747, Stop: 27196, Start Num: 1  
Candidate Starts for Survivors\_37:  
(Start: 1 @27747 has 54 MA's), (3, 27726), (6, 27702), (10, 27606), (11, 27567), (14, 27531), (21, 27459), (26, 27363),

Gene: SweatNTears\_40 Start: 27687, Stop: 27136, Start Num: 1  
Candidate Starts for SweatNTears\_40:  
(Start: 1 @27687 has 54 MA's), (5, 27660), (17, 27435), (24, 27351),

Gene: Tolls\_40 Start: 27815, Stop: 27267, Start Num: 1  
Candidate Starts for Tolls\_40:  
(Start: 1 @27815 has 54 MA's), (5, 27788), (10, 27674), (12, 27620), (19, 27536), (20, 27530), (22, 27518), (30, 27389),

Gene: Troje\_41 Start: 28273, Stop: 27737, Start Num: 1  
Candidate Starts for Troje\_41:  
(Start: 1 @28273 has 54 MA's), (3, 28252), (5, 28246), (17, 28021), (24, 27937),

Gene: Typhonomachy\_38 Start: 27409, Stop: 26858, Start Num: 1  
Candidate Starts for Typhonomachy\_38:  
(Start: 1 @27409 has 54 MA's), (5, 27382), (10, 27268), (22, 27112), (27, 27013),

Gene: Vine\_43 Start: 30028, Stop: 29438, Start Num: 1  
Candidate Starts for Vine\_43:  
(Start: 1 @30028 has 54 MA's), (10, 29890), (14, 29812), (16, 29791), (23, 29722), (29, 29614),

Gene: Yakult\_41 Start: 28566, Stop: 28024, Start Num: 1  
Candidate Starts for Yakult\_41:  
(Start: 1 @28566 has 54 MA's), (11, 28389), (13, 28371), (15, 28338), (22, 28275), (27, 28176), (28, 28164), (30, 28146),

Gene: Yarn\_36 Start: 27575, Stop: 27027, Start Num: 1  
Candidate Starts for Yarn\_36:  
(Start: 1 @27575 has 54 MA's), (5, 27548), (10, 27434), (12, 27380), (19, 27296), (20, 27290), (22, 27278), (30, 27149),

Gene: Yucky\_44 Start: 29968, Stop: 29378, Start Num: 1  
Candidate Starts for Yucky\_44:  
(Start: 1 @29968 has 54 MA's), (10, 29830), (14, 29752), (16, 29731), (29, 29554),

Gene: Yummy\_41 Start: 27909, Stop: 27364, Start Num: 1  
Candidate Starts for Yummy\_41:  
(Start: 1 @27909 has 54 MA's), (3, 27888), (5, 27882), (17, 27657), (18, 27636), (24, 27573),

Gene: Zareef\_39 Start: 27841, Stop: 27290, Start Num: 1

Candidate Starts for Zareef\_39:

(Start: 1 @27841 has 54 MA's), (3, 27820), (6, 27796), (10, 27700), (11, 27661), (14, 27625), (21, 27553), (26, 27457),