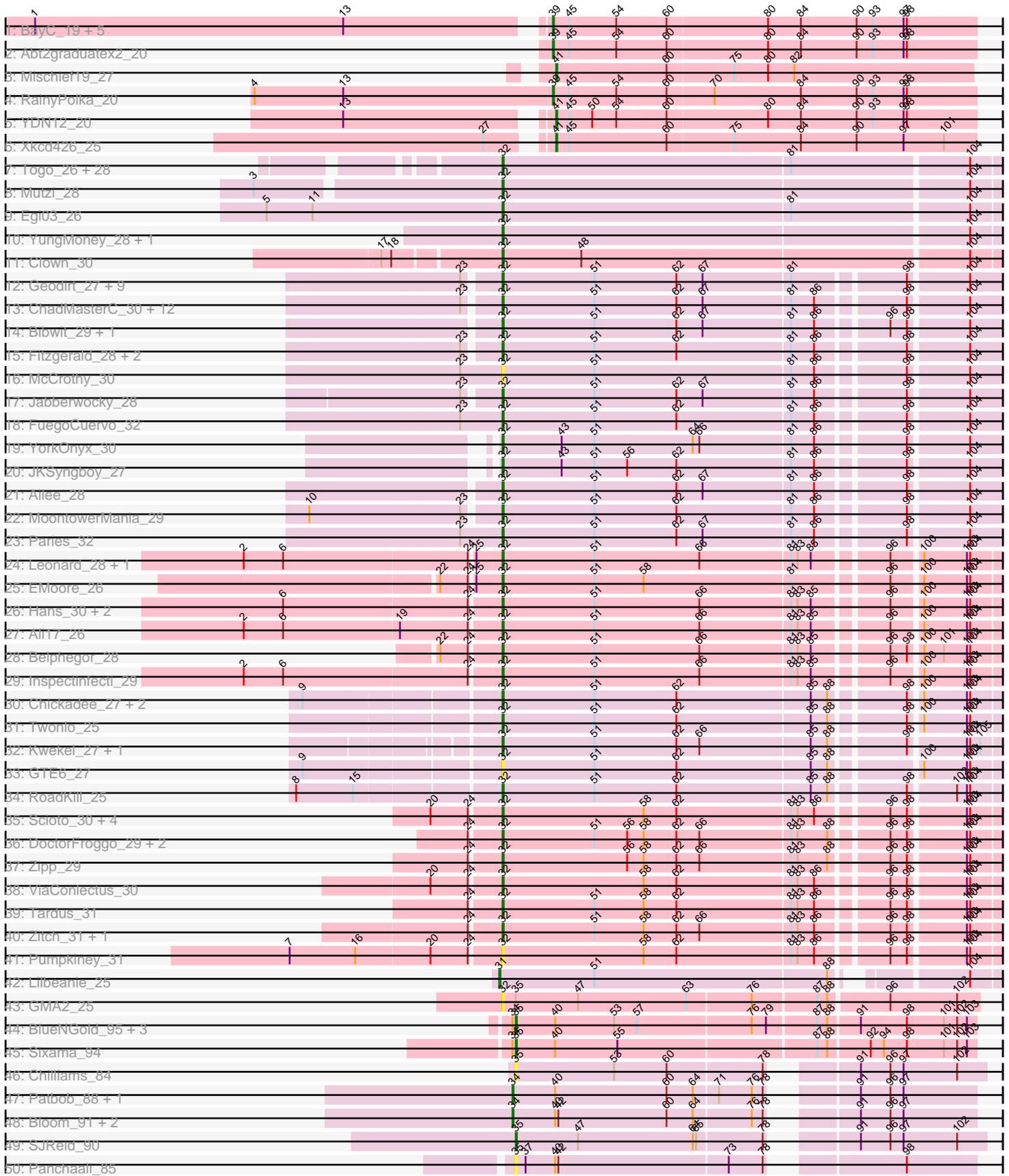
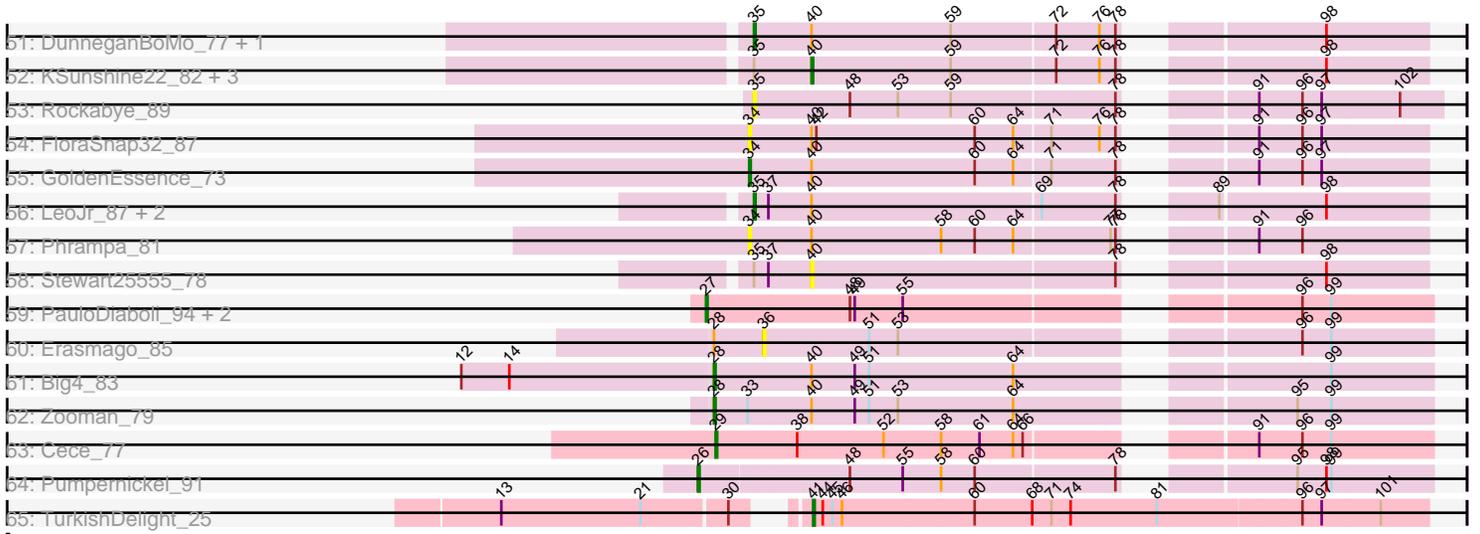


Pham 283561



Pham 283561



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 283561 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283561 has 150 members, 26 are drafts.

Phages represented in each track:

- Track 1 : BayC\_19, TP1604\_19, Salete\_19, Asis\_19, BabyGotBac\_19, Maih\_19
- Track 2 : Abt2graduatex2\_20
- Track 3 : Mischief19\_27
- Track 4 : RainyPolka\_20
- Track 5 : YDN12\_20
- Track 6 : Xkcd426\_25
- Track 7 : Togo\_26, Danyall\_28, CherryCola\_30, Portcullis\_26, TillyBobJoe\_26, Gezellig\_26, Halo3\_27, PullumCavea\_26, PinkCoffee\_28, ClamChowder\_28, RogerDodger\_29, Fugax\_28, KimmyK\_28, CoveyB\_28, Shinji\_26, Salvador\_26, Wizard\_26, Twister6\_28, Fireball\_27, Savbucketdawg\_26, Evamon\_26, Phlop\_26, Arri\_29, Barb\_28, Jambalaya\_26, VanDeWege\_29, Valary\_29, Nubi\_26, SmokingBunny\_26
- Track 8 : Mutzi\_28
- Track 9 : Egi03\_26
- Track 10 : YungMoney\_28, Bakery\_27
- Track 11 : Clown\_30
- Track 12 : Geodirt\_27, Nordenberg\_24, Brandonk123\_31, Fosterous\_28, Love\_33, McKinley\_32, Galadriel\_30, BobBob\_27, Rofo\_30, Tangent\_30
- Track 13 : ChadMasterC\_30, Shivanishola\_31, Kewpiedoll\_29, Sanjuju\_28, Vivi2\_32, Charming\_30, Kamashten\_29, Affeca\_28, Barsten\_30, Angelicage\_28, Stultus\_28, Keitabear\_30, Thing3\_29
- Track 14 : Bibwit\_29, Sedona\_30
- Track 15 : Fitzgerald\_28, Sitar\_30, Lennon\_30
- Track 16 : McCrothy\_30
- Track 17 : Jabberwocky\_28
- Track 18 : FuegoCuervo\_32
- Track 19 : YorkOnyx\_30
- Track 20 : JKSyngboy\_27
- Track 21 : Ailee\_28
- Track 22 : MoontowerMania\_29
- Track 23 : Paries\_32
- Track 24 : Leonard\_28, Phinally\_28
- Track 25 : EMoore\_26
- Track 26 : Hans\_30, MelBins\_29, Phauci\_21
- Track 27 : Ali17\_26
- Track 28 : Belphegor\_28
- Track 29 : Inspectinfecti\_29

- Track 30 : Chickadee\_27, Tiamoceli\_28, EdmundFerry\_26
- Track 31 : Twonlo\_25
- Track 32 : Kwekel\_27, Dexdert\_28
- Track 33 : GTE6\_27
- Track 34 : RoadKill\_25
- Track 35 : Scioto\_30, Natkenzie\_30, Abblin\_30, APunk\_31, Sampson\_30
- Track 36 : DoctorFroggo\_29, Verity\_29, Delrey21\_29
- Track 37 : Zipp\_29
- Track 38 : ViaConlectus\_30
- Track 39 : Tardus\_31
- Track 40 : Zitch\_31, BigHunkinEater\_32
- Track 41 : Pumpkiney\_31
- Track 42 : Lilbeanie\_25
- Track 43 : GMA2\_25
- Track 44 : BlueNGold\_95, Forza\_96, Boopy\_96, Mareelih\_94
- Track 45 : Sixama\_94
- Track 46 : Chilliams\_84
- Track 47 : Patbob\_88, Talia1610\_87
- Track 48 : Bloom\_91, Racecar\_88, Mimi\_87
- Track 49 : SJReid\_90
- Track 50 : Panchaali\_85
- Track 51 : DunneganBoMo\_77, Ellewin\_79
- Track 52 : KSunshine22\_82, BooTeria\_84, WaddleDee\_75, Artu\_80
- Track 53 : Rockabye\_89
- Track 54 : FloraSnap32\_87
- Track 55 : GoldenEssence\_73
- Track 56 : LeoJr\_87, ReginaGlobina\_87, Atuin\_82
- Track 57 : Phrampa\_81
- Track 58 : Stewart25555\_78
- Track 59 : PauloDiaboli\_94, Dodo\_94, A3Wally\_94
- Track 60 : Erasmago\_85
- Track 61 : Big4\_83
- Track 62 : Zooman\_79
- Track 63 : Cece\_77
- Track 64 : Pumpernickel\_91
- Track 65 : TurkishDelight\_25

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

The start number called the most often in the published annotations is 32, it was called in 92 of the 124 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• APunk\_31, Abblin\_30, Affeca\_28, Ailee\_28, Ali17\_26, Angelicage\_28, Arri\_29, Bakery\_27, Barb\_28, Barsten\_30, Belphegor\_28, Bibwit\_29, BigHunkinEater\_32, BobBob\_27, Brandonk123\_31, ChadMasterC\_30, Charming\_30, CherryCola\_30, Chickadee\_27, ClamChowder\_28, Clown\_30, CoveyB\_28, Danyall\_28, Delrey21\_29, Dexdert\_28, DoctorFroggo\_29, EMoore\_26, EdmundFerry\_26, Egi03\_26, Evamon\_26, Fireball\_27, Fitzgerald\_28, Fosterous\_28, FuegoCuervo\_32, Fugax\_28, GMA2\_25, GTE6\_27, Galadriel\_30, Geodirt\_27, Gezellig\_26, Halo3\_27, Hans\_30,

Inspectinfecti\_29, JKSyngboy\_27, Jabberwocky\_28, Jambalaya\_26, Kamashten\_29, Keitabear\_30, Kewpiedoll\_29, KimmyK\_28, Kwekel\_27, Lennon\_30, Leonard\_28, Love\_33, McCrothy\_30, McKinley\_32, MelBins\_29, MoontowerMania\_29, Mutzi\_28, Natkenzie\_30, Nordenberg\_24, Nubi\_26, Paries\_32, Phauci\_21, Phinally\_28, Phlop\_26, PinkCoffee\_28, Portcullis\_26, PullumCavea\_26, Pumpkiney\_31, RoadKill\_25, Rofo\_30, RogerDodger\_29, Salvador\_26, Sampson\_30, Sanjuju\_28, Savbucketdawg\_26, Scioto\_30, Sedona\_30, Shinji\_26, Shivanishola\_31, Sitar\_30, SmokingBunny\_26, Stultus\_28, Tangent\_30, Tardus\_31, Thing3\_29, Tiamoceli\_28, TillyBobJoe\_26, Togo\_26, Twister6\_28, Twonlo\_25, Valary\_29, VanDeWege\_29, Verity\_29, ViaConlectus\_30, Vivi2\_32, Wizard\_26, YorkOnyx\_30, YungMoney\_28, Zipp\_29, Zitch\_31,

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

- 

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

- A3Wally\_94, Abt2graduatex2\_20, Artu\_80, Asis\_19, Atuin\_82, BabyGotBac\_19, BayC\_19, Big4\_83, Bloom\_91, BlueNGold\_95, BooTeria\_84, Boopy\_96, Cece\_77, Chilliams\_84, Dodo\_94, DunneganBoMo\_77, Ellewin\_79, Erasmago\_85, FloraSnap32\_87, Forza\_96, GoldenEssence\_73, KSunshine22\_82, LeoJr\_87, Lilbeanie\_25, Maih\_19, Mareelih\_94, Mimi\_87, Mischief19\_27, Panchaali\_85, Patbob\_88, PauloDiaboli\_94, Phrampa\_81, Pumpernickel\_91, Racecar\_88, RainyPolka\_20, ReginaGlobina\_87, Rockabye\_89, SJReid\_90, Salete\_19, Sixama\_94, Stewart25555\_78, TP1604\_19, Talia1610\_87, TurkishDelight\_25, WaddleDee\_75, Xkcd426\_25, YDN12\_20, Zooman\_79,

### Summary by start number:

Start 26:

- Found in 1 of 150 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pumpernickel\_91 (GD4),

Start 27:

- Found in 4 of 150 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 75.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_94 (GD1), Dodo\_94 (GD1), PauloDiaboli\_94 (GD1),

Start 28:

- Found in 3 of 150 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 2 of 124
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Big4\_83 (GD2), Zooman\_79 (GD2),

Start 29:

- Found in 1 of 150 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cece\_77 (GD3),

#### Start 31:

- Found in 1 of 150 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Lilbeanie\_25 (DE5),

#### Start 32:

- Found in 102 of 150 ( 68.0% ) of genes in pham
- Manual Annotations of this start: 92 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: APunk\_31 (DE4), Abblin\_30 (DE4), Affeca\_28 (DE1), Ailee\_28 (DE1), Ali17\_26 (DE2), Angelicage\_28 (DE1), Arri\_29 (DC1), Bakery\_27 (DC1), Barb\_28 (DC1), Barsten\_30 (DE1), Belphegor\_28 (DE2), Bibwit\_29 (DE1), BigHunkinEater\_32 (DE4), BobBob\_27 (DE1), Brandonk123\_31 (DE1), ChadMasterC\_30 (DE1), Charming\_30 (DE1), CherryCola\_30 (DC1), Chickadee\_27 (DE3), ClamChowder\_28 (DC1), Clown\_30 (DC2), CoveyB\_28 (DC1), Danyall\_28 (DC1), Delrey21\_29 (DE4), Dexdert\_28 (DE3), DoctorFroggo\_29 (DE4), EMoore\_26 (DE2), EdmundFerry\_26 (DE3), Egi03\_26 (DC1), Evamon\_26 (DC1), Fireball\_27 (DC1), Fitzgerald\_28 (DE1), Fosterous\_28 (DE1), FuegoCuervo\_32 (DE1), Fugax\_28 (DC1), GMA2\_25 (DS), GTE6\_27 (DE3), Galadriel\_30 (DE1), Geodirt\_27 (DE1), Gezellig\_26 (DC1), Halo3\_27 (DC1), Hans\_30 (DE2), Inspectinfecti\_29 (DE2), JKSyngboy\_27 (DE1), Jabberwocky\_28 (DE1), Jambalaya\_26 (DC1), Kamashten\_29 (DE1), Keitabear\_30 (DE1), Kewpiedoll\_29 (DE1), KimmyK\_28 (DC1), Kwekel\_27 (DE3), Lennon\_30 (DE1), Leonard\_28 (DE2), Love\_33 (DE1), McCrothy\_30 (DE1), McKinley\_32 (DE1), MelBins\_29 (DE2), MoontowerMania\_29 (DE1), Mutzi\_28 (DC1), Natkenzie\_30 (DE4), Nordenberg\_24 (DE1), Nubi\_26 (DC1), Paries\_32 (DE1), Phauci\_21 (DE2), Phinally\_28 (DE2), Phlop\_26 (DC1), PinkCoffee\_28 (DC1), Portcullis\_26 (DC1), PullumCavea\_26 (DC1), Pumpkiney\_31 (DE4), RoadKill\_25 (DE3), Rofo\_30 (DE1), RogerDodger\_29 (DC1), Salvador\_26 (DC1), Sampson\_30 (DE4), Sanjuju\_28 (DE1), Savbucketdawg\_26 (DC1), Scioto\_30 (DE4), Sedona\_30 (DE1), Shinji\_26 (DC1), Shivanishola\_31 (DE1), Sitar\_30 (DE1), SmokingBunny\_26 (DC1), Stultus\_28 (DE1), Tangent\_30 (DE1), Tardus\_31 (DE4), Thing3\_29 (DE1), Tiamoceli\_28 (DE3), TillyBobJoe\_26 (DC1), Togo\_26 (DC1), Twister6\_28 (DC1), Twonlo\_25 (DE3), Valary\_29 (DC1), VanDeWege\_29 (DC1), Verity\_29 (DE4), ViaConlectus\_30 (DE4), Vivi2\_32 (DE1), Wizard\_26 (DC1), YorkOnyx\_30 (DE1), YungMoney\_28 (DC1), Zipp\_29 (DE4), Zitch\_31 (DE4),

#### Start 34:

- Found in 13 of 150 ( 8.7% ) of genes in pham
- Manual Annotations of this start: 4 of 124
- Called 61.5% of time when present
- Phage (with cluster) where this start called: Bloom\_91 (FC), FloraSnap32\_87 (FC), GoldenEssence\_73 (FC), Mimi\_87 (FC), Patbob\_88 (FC), Phrampa\_81 (FC), Racecar\_88 (FC), Talia1610\_87 (FC),

#### Start 35:

- Found in 20 of 150 ( 13.3% ) of genes in pham
- Manual Annotations of this start: 8 of 124
- Called 70.0% of time when present
- Phage (with cluster) where this start called: Atuin\_82 (FC), BlueNGGold\_95 (DS), Boopy\_96 (DS), Chilliams\_84 (FC), DunneganBoMo\_77 (FC), Ellewin\_79 (FC), Forza\_96 (DS), LeoJr\_87 (FC), Mareelih\_94 (DS), Panchaali\_85 (FC),

ReginaGlobina\_87 (FC), Rockabye\_89 (FC), SJReid\_90 (FC), Sixama\_94 (DS),

Start 36:

- Found in 1 of 150 ( 0.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Erasmago\_85 (GD2),

Start 39:

- Found in 8 of 150 ( 5.3% ) of genes in pham
- Manual Annotations of this start: 8 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abt2graduatex2\_20 (BG), Asis\_19 (BG), BabyGotBac\_19 (BG), BayC\_19 (BG), Maih\_19 (BG), RainyPolka\_20 (BG), Salete\_19 (BG), TP1604\_19 (BG),

Start 40:

- Found in 26 of 150 ( 17.3% ) of genes in pham
- Manual Annotations of this start: 1 of 124
- Called 19.2% of time when present
- Phage (with cluster) where this start called: Artu\_80 (FC), BooTeria\_84 (FC), KSunshine22\_82 (FC), Stewart25555\_78 (FC), WaddleDee\_75 (FC),

Start 41:

- Found in 4 of 150 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 4 of 124
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mischief19\_27 (BG), TurkishDelight\_25 (singleton), Xkcd426\_25 (BG), YDN12\_20 (BG),

### **Summary by clusters:**

There are 15 clusters represented in this pham: GD1, GD2, BG, GD4, DE1, DE2, DE3, DE4, singleton, DE5, FC, GD3, DC2, DS, DC1,

Info for manual annotations of cluster BG:

- Start number 39 was manually annotated 8 times for cluster BG.
- Start number 41 was manually annotated 3 times for cluster BG.

Info for manual annotations of cluster DC1:

- Start number 32 was manually annotated 31 times for cluster DC1.

Info for manual annotations of cluster DC2:

- Start number 32 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DE1:

- Start number 32 was manually annotated 35 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 32 was manually annotated 9 times for cluster DE2.

Info for manual annotations of cluster DE3:

- Start number 32 was manually annotated 7 times for cluster DE3.

Info for manual annotations of cluster DE4:

- Start number 32 was manually annotated 9 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 31 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster DS:

- Start number 35 was manually annotated 5 times for cluster DS.

Info for manual annotations of cluster FC:

- Start number 34 was manually annotated 4 times for cluster FC.
- Start number 35 was manually annotated 3 times for cluster FC.
- Start number 40 was manually annotated 1 time for cluster FC.

Info for manual annotations of cluster GD1:

- Start number 27 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 28 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 29 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 26 was manually annotated 1 time for cluster GD4.

### ***Gene Information:***

Gene: A3Wally\_94 Start: 50689, Stop: 51099, Start Num: 27

Candidate Starts for A3Wally\_94:

(Start: 27 @50689 has 2 MA's), (48, 50776), (49, 50779), (55, 50809), (96, 51019), (99, 51037),

Gene: APunk\_31 Start: 22352, Stop: 22783, Start Num: 32

Candidate Starts for APunk\_31:

(20, 22292), (24, 22325), (Start: 32 @22352 has 92 MA's), (58, 22481), (62, 22511), (81, 22613), (83, 22619), (86, 22634), (96, 22691), (98, 22706), (103, 22754), (104, 22757),

Gene: Abblin\_30 Start: 22964, Stop: 23395, Start Num: 32

Candidate Starts for Abblin\_30:

(20, 22904), (24, 22937), (Start: 32 @22964 has 92 MA's), (58, 23093), (62, 23123), (81, 23225), (83, 23231), (86, 23246), (96, 23303), (98, 23318), (103, 23366), (104, 23369),

Gene: Abt2graduatex2\_20 Start: 19744, Stop: 20124, Start Num: 39

Candidate Starts for Abt2graduatex2\_20:

(Start: 39 @19744 has 8 MA's), (45, 19759), (54, 19801), (60, 19846), (80, 19936), (84, 19966), (90, 20017), (93, 20032), (97, 20059), (98, 20062),

Gene: Affeca\_28 Start: 22852, Stop: 23286, Start Num: 32

Candidate Starts for Affeca\_28:

(23, 22822), (Start: 32 @22852 has 92 MA's), (51, 22936), (62, 23011), (67, 23035), (81, 23113), (86, 23134), (98, 23206), (104, 23257),

Gene: Ailee\_28 Start: 23561, Stop: 23995, Start Num: 32

Candidate Starts for Ailee\_28:

(Start: 32 @23561 has 92 MA's), (51, 23645), (62, 23720), (67, 23744), (81, 23822), (86, 23843), (98, 23915), (104, 23966),

Gene: Ali17\_26 Start: 20746, Stop: 21177, Start Num: 32

Candidate Starts for Ali17\_26:

(2, 20518), (6, 20554), (19, 20659), (24, 20719), (Start: 32 @20746 has 92 MA's), (51, 20830), (66, 20926), (81, 21007), (83, 21013), (85, 21025), (96, 21085), (100, 21109), (103, 21148), (104, 21151),

Gene: Angelicage\_28 Start: 23269, Stop: 23703, Start Num: 32

Candidate Starts for Angelicage\_28:

(23, 23239), (Start: 32 @23269 has 92 MA's), (51, 23353), (62, 23428), (67, 23452), (81, 23530), (86, 23551), (98, 23623), (104, 23674),

Gene: Arri\_29 Start: 18253, Stop: 18696, Start Num: 32

Candidate Starts for Arri\_29:

(Start: 32 @18253 has 92 MA's), (81, 18514), (104, 18670),

Gene: Artu\_80 Start: 49418, Stop: 49762, Start Num: 40

Candidate Starts for Artu\_80:

(Start: 35 @49382 has 8 MA's), (Start: 40 @49418 has 1 MA's), (59, 49505), (72, 49568), (76, 49595), (78, 49604), (98, 49700),

Gene: Asis\_19 Start: 19235, Stop: 19615, Start Num: 39

Candidate Starts for Asis\_19:

(1, 18785), (13, 19067), (Start: 39 @19235 has 8 MA's), (45, 19250), (54, 19292), (60, 19337), (80, 19427), (84, 19457), (90, 19508), (93, 19523), (97, 19550), (98, 19553),

Gene: Atuin\_82 Start: 52030, Stop: 52410, Start Num: 35

Candidate Starts for Atuin\_82:

(Start: 35 @52030 has 8 MA's), (37, 52039), (Start: 40 @52066 has 1 MA's), (69, 52207), (78, 52252), (89, 52285), (98, 52348),

Gene: BabyGotBac\_19 Start: 19235, Stop: 19615, Start Num: 39

Candidate Starts for BabyGotBac\_19:

(1, 18785), (13, 19067), (Start: 39 @19235 has 8 MA's), (45, 19250), (54, 19292), (60, 19337), (80, 19427), (84, 19457), (90, 19508), (93, 19523), (97, 19550), (98, 19553),

Gene: Bakery\_27 Start: 17507, Stop: 17950, Start Num: 32

Candidate Starts for Bakery\_27:

(Start: 32 @17507 has 92 MA's), (104, 17924),

Gene: Barb\_28 Start: 18286, Stop: 18729, Start Num: 32

Candidate Starts for Barb\_28:

(Start: 32 @18286 has 92 MA's), (81, 18547), (104, 18703),

Gene: Barsten\_30 Start: 22693, Stop: 23127, Start Num: 32

Candidate Starts for Barsten\_30:

(23, 22663), (Start: 32 @22693 has 92 MA's), (51, 22777), (62, 22852), (67, 22876), (81, 22954), (86, 22975), (98, 23047), (104, 23098),

Gene: BayC\_19 Start: 19235, Stop: 19615, Start Num: 39

Candidate Starts for BayC\_19:

(1, 18785), (13, 19067), (Start: 39 @19235 has 8 MA's), (45, 19250), (54, 19292), (60, 19337), (80, 19427), (84, 19457), (90, 19508), (93, 19523), (97, 19550), (98, 19553),

Gene: Belphegor\_28 Start: 22298, Stop: 22729, Start Num: 32

Candidate Starts for Belphegor\_28:

(22, 22247), (24, 22271), (Start: 32 @22298 has 92 MA's), (51, 22382), (66, 22478), (81, 22559), (83, 22565), (85, 22577), (96, 22637), (98, 22652), (100, 22661), (101, 22679), (103, 22700), (104, 22703),

Gene: Bibwit\_29 Start: 22880, Stop: 23314, Start Num: 32

Candidate Starts for Bibwit\_29:

(Start: 32 @22880 has 92 MA's), (51, 22964), (62, 23039), (67, 23063), (81, 23141), (86, 23162), (96, 23219), (98, 23234), (104, 23285),

Gene: Big4\_83 Start: 49711, Stop: 50121, Start Num: 28

Candidate Starts for Big4\_83:

(12, 49555), (14, 49585), (Start: 28 @49711 has 2 MA's), (Start: 40 @49771 has 1 MA's), (49, 49798), (51, 49807), (64, 49897), (99, 50059),

Gene: BigHunkinEater\_32 Start: 22135, Stop: 22566, Start Num: 32

Candidate Starts for BigHunkinEater\_32:

(24, 22108), (Start: 32 @22135 has 92 MA's), (51, 22219), (58, 22264), (62, 22294), (66, 22315), (81, 22396), (83, 22402), (86, 22417), (96, 22474), (98, 22489), (103, 22537), (104, 22540),

Gene: Bloom\_91 Start: 53421, Stop: 53804, Start Num: 34

Candidate Starts for Bloom\_91:

(Start: 34 @53421 has 4 MA's), (Start: 40 @53460 has 1 MA's), (42, 53463), (60, 53562), (64, 53586), (76, 53637), (78, 53646), (91, 53700), (96, 53727), (97, 53739),

Gene: BlueNGold\_95 Start: 51971, Stop: 52378, Start Num: 35

Candidate Starts for BlueNGold\_95:

(Start: 34 @51968 has 4 MA's), (Start: 35 @51971 has 8 MA's), (Start: 40 @52007 has 1 MA's), (53, 52061), (57, 52082), (76, 52184), (79, 52196), (87, 52238), (88, 52247), (91, 52274), (98, 52316), (101, 52349), (102, 52361), (103, 52370),

Gene: BobBob\_27 Start: 22158, Stop: 22592, Start Num: 32

Candidate Starts for BobBob\_27:

(23, 22128), (Start: 32 @22158 has 92 MA's), (51, 22242), (62, 22317), (67, 22341), (81, 22419), (98, 22512), (104, 22563),

Gene: BooTeria\_84 Start: 49486, Stop: 49830, Start Num: 40

Candidate Starts for BooTeria\_84:

(Start: 35 @49450 has 8 MA's), (Start: 40 @49486 has 1 MA's), (59, 49573), (72, 49636), (76, 49663), (78, 49672), (98, 49768),

Gene: Boopy\_96 Start: 51983, Stop: 52390, Start Num: 35

Candidate Starts for Boopy\_96:

(Start: 34 @51980 has 4 MA's), (Start: 35 @51983 has 8 MA's), (Start: 40 @52019 has 1 MA's), (53, 52073), (57, 52094), (76, 52196), (79, 52208), (87, 52250), (88, 52259), (91, 52286), (98, 52328), (101,

52361), (102, 52373), (103, 52382),

Gene: Brandonk123\_31 Start: 23227, Stop: 23661, Start Num: 32

Candidate Starts for Brandonk123\_31:

(23, 23197), (Start: 32 @23227 has 92 MA's), (51, 23311), (62, 23386), (67, 23410), (81, 23488), (98, 23581), (104, 23632),

Gene: Cece\_77 Start: 45674, Stop: 46081, Start Num: 29

Candidate Starts for Cece\_77:

(Start: 29 @45674 has 1 MA's), (38, 45725), (52, 45779), (58, 45815), (61, 45839), (64, 45860), (66, 45866), (91, 45974), (96, 46001), (99, 46019),

Gene: ChadMasterC\_30 Start: 23885, Stop: 24319, Start Num: 32

Candidate Starts for ChadMasterC\_30:

(23, 23855), (Start: 32 @23885 has 92 MA's), (51, 23969), (62, 24044), (67, 24068), (81, 24146), (86, 24167), (98, 24239), (104, 24290),

Gene: Charming\_30 Start: 22736, Stop: 23170, Start Num: 32

Candidate Starts for Charming\_30:

(23, 22706), (Start: 32 @22736 has 92 MA's), (51, 22820), (62, 22895), (67, 22919), (81, 22997), (86, 23018), (98, 23090), (104, 23141),

Gene: CherryCola\_30 Start: 18503, Stop: 18946, Start Num: 32

Candidate Starts for CherryCola\_30:

(Start: 32 @18503 has 92 MA's), (81, 18764), (104, 18920),

Gene: Chickadee\_27 Start: 19601, Stop: 20032, Start Num: 32

Candidate Starts for Chickadee\_27:

(9, 19433), (Start: 32 @19601 has 92 MA's), (51, 19685), (62, 19760), (85, 19880), (88, 19895), (98, 19955), (100, 19964), (103, 20003), (104, 20006),

Gene: Chilliams\_84 Start: 55298, Stop: 55687, Start Num: 35

Candidate Starts for Chilliams\_84:

(Start: 35 @55298 has 8 MA's), (53, 55388), (60, 55436), (78, 55520), (91, 55574), (96, 55601), (97, 55613), (102, 55661),

Gene: ClamChowder\_28 Start: 18286, Stop: 18729, Start Num: 32

Candidate Starts for ClamChowder\_28:

(Start: 32 @18286 has 92 MA's), (81, 18547), (104, 18703),

Gene: Clown\_30 Start: 20227, Stop: 20670, Start Num: 32

Candidate Starts for Clown\_30:

(17, 20125), (18, 20134), (Start: 32 @20227 has 92 MA's), (48, 20299), (104, 20644),

Gene: CoveyB\_28 Start: 18086, Stop: 18529, Start Num: 32

Candidate Starts for CoveyB\_28:

(Start: 32 @18086 has 92 MA's), (81, 18347), (104, 18503),

Gene: Danyall\_28 Start: 18086, Stop: 18529, Start Num: 32

Candidate Starts for Danyall\_28:

(Start: 32 @18086 has 92 MA's), (81, 18347), (104, 18503),

Gene: Delrey21\_29 Start: 23097, Stop: 23528, Start Num: 32

Candidate Starts for Delrey21\_29:

(24, 23070), (Start: 32 @23097 has 92 MA's), (51, 23181), (56, 23211), (58, 23226), (62, 23256), (66, 23277), (81, 23358), (83, 23364), (88, 23391), (96, 23436), (98, 23451), (103, 23499), (104, 23502),

Gene: Dexdert\_28 Start: 20032, Stop: 20463, Start Num: 32

Candidate Starts for Dexdert\_28:

(Start: 32 @20032 has 92 MA's), (51, 20116), (62, 20191), (66, 20212), (85, 20311), (88, 20326), (98, 20386), (103, 20434), (104, 20437), (105, 20446),

Gene: DoctorFroggo\_29 Start: 23097, Stop: 23528, Start Num: 32

Candidate Starts for DoctorFroggo\_29:

(24, 23070), (Start: 32 @23097 has 92 MA's), (51, 23181), (56, 23211), (58, 23226), (62, 23256), (66, 23277), (81, 23358), (83, 23364), (88, 23391), (96, 23436), (98, 23451), (103, 23499), (104, 23502),

Gene: Dodo\_94 Start: 51011, Stop: 51421, Start Num: 27

Candidate Starts for Dodo\_94:

(Start: 27 @51011 has 2 MA's), (48, 51098), (49, 51101), (55, 51131), (96, 51341), (99, 51359),

Gene: DunneganBoMo\_77 Start: 48875, Stop: 49255, Start Num: 35

Candidate Starts for DunneganBoMo\_77:

(Start: 35 @48875 has 8 MA's), (Start: 40 @48911 has 1 MA's), (59, 48998), (72, 49061), (76, 49088), (78, 49097), (98, 49193),

Gene: EMoore\_26 Start: 21587, Stop: 22018, Start Num: 32

Candidate Starts for EMoore\_26:

(22, 21536), (24, 21560), (25, 21563), (Start: 32 @21587 has 92 MA's), (51, 21671), (58, 21716), (81, 21848), (96, 21926), (100, 21950), (103, 21989), (104, 21992),

Gene: EdmundFerry\_26 Start: 19630, Stop: 20061, Start Num: 32

Candidate Starts for EdmundFerry\_26:

(9, 19462), (Start: 32 @19630 has 92 MA's), (51, 19714), (62, 19789), (85, 19909), (88, 19924), (98, 19984), (100, 19993), (103, 20032), (104, 20035),

Gene: Egi03\_26 Start: 17805, Stop: 18248, Start Num: 32

Candidate Starts for Egi03\_26:

(5, 17589), (11, 17631), (Start: 32 @17805 has 92 MA's), (81, 18066), (104, 18222),

Gene: Ellewin\_79 Start: 48470, Stop: 48850, Start Num: 35

Candidate Starts for Ellewin\_79:

(Start: 35 @48470 has 8 MA's), (Start: 40 @48506 has 1 MA's), (59, 48593), (72, 48656), (76, 48683), (78, 48692), (98, 48788),

Gene: Erasmago\_85 Start: 47346, Stop: 47723, Start Num: 36

Candidate Starts for Erasmago\_85:

(Start: 28 @47316 has 2 MA's), (36, 47346), (51, 47412), (53, 47430), (96, 47643), (99, 47661),

Gene: Evamon\_26 Start: 17572, Stop: 18015, Start Num: 32

Candidate Starts for Evamon\_26:

(Start: 32 @17572 has 92 MA's), (81, 17833), (104, 17989),

Gene: Fireball\_27 Start: 17704, Stop: 18147, Start Num: 32

Candidate Starts for Fireball\_27:

(Start: 32 @17704 has 92 MA's), (81, 17965), (104, 18121),

Gene: Fitzgerald\_28 Start: 23319, Stop: 23753, Start Num: 32

Candidate Starts for Fitzgerald\_28:

(23, 23289), (Start: 32 @23319 has 92 MA's), (51, 23403), (62, 23478), (81, 23580), (86, 23601), (98, 23673), (104, 23724),

Gene: FloraSnap32\_87 Start: 52458, Stop: 52841, Start Num: 34

Candidate Starts for FloraSnap32\_87:

(Start: 34 @52458 has 4 MA's), (Start: 40 @52497 has 1 MA's), (42, 52500), (60, 52599), (64, 52623), (71, 52644), (76, 52674), (78, 52683), (91, 52737), (96, 52764), (97, 52776),

Gene: Forza\_96 Start: 51899, Stop: 52306, Start Num: 35

Candidate Starts for Forza\_96:

(Start: 34 @51896 has 4 MA's), (Start: 35 @51899 has 8 MA's), (Start: 40 @51935 has 1 MA's), (53, 51989), (57, 52010), (76, 52112), (79, 52124), (87, 52166), (88, 52175), (91, 52202), (98, 52244), (101, 52277), (102, 52289), (103, 52298),

Gene: Fosterous\_28 Start: 23152, Stop: 23586, Start Num: 32

Candidate Starts for Fosterous\_28:

(23, 23122), (Start: 32 @23152 has 92 MA's), (51, 23236), (62, 23311), (67, 23335), (81, 23413), (98, 23506), (104, 23557),

Gene: FuegoCuervo\_32 Start: 21703, Stop: 22137, Start Num: 32

Candidate Starts for FuegoCuervo\_32:

(23, 21664), (Start: 32 @21703 has 92 MA's), (51, 21787), (62, 21862), (81, 21964), (86, 21985), (98, 22057), (104, 22108),

Gene: Fugax\_28 Start: 18286, Stop: 18729, Start Num: 32

Candidate Starts for Fugax\_28:

(Start: 32 @18286 has 92 MA's), (81, 18547), (104, 18703),

Gene: GMA2\_25 Start: 22256, Stop: 22675, Start Num: 32

Candidate Starts for GMA2\_25:

(Start: 32 @22256 has 92 MA's), (Start: 35 @22268 has 8 MA's), (47, 22325), (63, 22424), (76, 22481), (87, 22535), (88, 22544), (96, 22595), (102, 22655),

Gene: GTE6\_27 Start: 20119, Stop: 20550, Start Num: 32

Candidate Starts for GTE6\_27:

(9, 19951), (Start: 32 @20119 has 92 MA's), (51, 20203), (62, 20278), (85, 20398), (88, 20413), (100, 20482), (103, 20521), (104, 20524),

Gene: Galadriel\_30 Start: 23641, Stop: 24075, Start Num: 32

Candidate Starts for Galadriel\_30:

(23, 23611), (Start: 32 @23641 has 92 MA's), (51, 23725), (62, 23800), (67, 23824), (81, 23902), (98, 23995), (104, 24046),

Gene: Geodirt\_27 Start: 22624, Stop: 23058, Start Num: 32

Candidate Starts for Geodirt\_27:

(23, 22594), (Start: 32 @22624 has 92 MA's), (51, 22708), (62, 22783), (67, 22807), (81, 22885), (98, 22978), (104, 23029),

Gene: Gezellig\_26 Start: 17704, Stop: 18147, Start Num: 32

Candidate Starts for Gezellig\_26:

(Start: 32 @17704 has 92 MA's), (81, 17965), (104, 18121),

Gene: GoldenEssence\_73 Start: 47214, Stop: 47597, Start Num: 34

Candidate Starts for GoldenEssence\_73:

(Start: 34 @47214 has 4 MA's), (Start: 40 @47253 has 1 MA's), (60, 47355), (64, 47379), (71, 47400), (78, 47439), (91, 47493), (96, 47520), (97, 47532),

Gene: Halo3\_27 Start: 17997, Stop: 18440, Start Num: 32

Candidate Starts for Halo3\_27:

(Start: 32 @17997 has 92 MA's), (81, 18258), (104, 18414),

Gene: Hans\_30 Start: 21408, Stop: 21839, Start Num: 32

Candidate Starts for Hans\_30:

(6, 21216), (24, 21381), (Start: 32 @21408 has 92 MA's), (51, 21492), (66, 21588), (81, 21669), (83, 21675), (85, 21687), (96, 21747), (100, 21771), (103, 21810), (104, 21813),

Gene: Inspectinfecti\_29 Start: 21832, Stop: 22263, Start Num: 32

Candidate Starts for Inspectinfecti\_29:

(2, 21604), (6, 21640), (24, 21805), (Start: 32 @21832 has 92 MA's), (51, 21916), (66, 22012), (81, 22093), (83, 22099), (85, 22111), (96, 22171), (100, 22195), (103, 22234), (104, 22237),

Gene: JKSyngboy\_27 Start: 22410, Stop: 22844, Start Num: 32

Candidate Starts for JKSyngboy\_27:

(Start: 32 @22410 has 92 MA's), (43, 22464), (51, 22494), (56, 22524), (62, 22569), (81, 22671), (86, 22692), (98, 22764), (104, 22815),

Gene: Jabberwocky\_28 Start: 23780, Stop: 24214, Start Num: 32

Candidate Starts for Jabberwocky\_28:

(23, 23750), (Start: 32 @23780 has 92 MA's), (51, 23864), (62, 23939), (67, 23963), (81, 24041), (86, 24062), (98, 24134), (104, 24185),

Gene: Jambalaya\_26 Start: 17351, Stop: 17794, Start Num: 32

Candidate Starts for Jambalaya\_26:

(Start: 32 @17351 has 92 MA's), (81, 17612), (104, 17768),

Gene: KSunshine22\_82 Start: 50145, Stop: 50489, Start Num: 40

Candidate Starts for KSunshine22\_82:

(Start: 35 @50109 has 8 MA's), (Start: 40 @50145 has 1 MA's), (59, 50232), (72, 50295), (76, 50322), (78, 50331), (98, 50427),

Gene: Kamashten\_29 Start: 23229, Stop: 23663, Start Num: 32

Candidate Starts for Kamashten\_29:

(23, 23199), (Start: 32 @23229 has 92 MA's), (51, 23313), (62, 23388), (67, 23412), (81, 23490), (86, 23511), (98, 23583), (104, 23634),

Gene: Keitabear\_30 Start: 24585, Stop: 25019, Start Num: 32

Candidate Starts for Keitabear\_30:

(23, 24555), (Start: 32 @24585 has 92 MA's), (51, 24669), (62, 24744), (67, 24768), (81, 24846), (86, 24867), (98, 24939), (104, 24990),

Gene: Kewpiedoll\_29 Start: 22426, Stop: 22860, Start Num: 32

Candidate Starts for Kewpiedoll\_29:

(23, 22396), (Start: 32 @22426 has 92 MA's), (51, 22510), (62, 22585), (67, 22609), (81, 22687), (86, 22708), (98, 22780), (104, 22831),

Gene: KimmyK\_28 Start: 18286, Stop: 18729, Start Num: 32  
Candidate Starts for KimmyK\_28:  
(Start: 32 @18286 has 92 MA's), (81, 18547), (104, 18703),

Gene: Kwekel\_27 Start: 19551, Stop: 19982, Start Num: 32  
Candidate Starts for Kwekel\_27:  
(Start: 32 @19551 has 92 MA's), (51, 19635), (62, 19710), (66, 19731), (85, 19830), (88, 19845), (98, 19905), (103, 19953), (104, 19956), (105, 19965),

Gene: Lennon\_30 Start: 24387, Stop: 24821, Start Num: 32  
Candidate Starts for Lennon\_30:  
(23, 24357), (Start: 32 @24387 has 92 MA's), (51, 24471), (62, 24546), (81, 24648), (86, 24669), (98, 24741), (104, 24792),

Gene: LeoJr\_87 Start: 52158, Stop: 52538, Start Num: 35  
Candidate Starts for LeoJr\_87:  
(Start: 35 @52158 has 8 MA's), (37, 52167), (Start: 40 @52194 has 1 MA's), (69, 52335), (78, 52380), (89, 52413), (98, 52476),

Gene: Leonard\_28 Start: 21406, Stop: 21837, Start Num: 32  
Candidate Starts for Leonard\_28:  
(2, 21178), (6, 21214), (24, 21379), (25, 21382), (Start: 32 @21406 has 92 MA's), (51, 21490), (66, 21586), (81, 21667), (83, 21673), (85, 21685), (96, 21745), (100, 21769), (103, 21808), (104, 21811),

Gene: Lilbeanie\_25 Start: 16498, Stop: 16914, Start Num: 31  
Candidate Starts for Lilbeanie\_25:  
(Start: 31 @16498 has 1 MA's), (51, 16585), (88, 16795), (104, 16888),

Gene: Love\_33 Start: 24151, Stop: 24585, Start Num: 32  
Candidate Starts for Love\_33:  
(23, 24121), (Start: 32 @24151 has 92 MA's), (51, 24235), (62, 24310), (67, 24334), (81, 24412), (98, 24505), (104, 24556),

Gene: Maih\_19 Start: 19234, Stop: 19614, Start Num: 39  
Candidate Starts for Maih\_19:  
(1, 18784), (13, 19066), (Start: 39 @19234 has 8 MA's), (45, 19249), (54, 19291), (60, 19336), (80, 19426), (84, 19456), (90, 19507), (93, 19522), (97, 19549), (98, 19552),

Gene: Mareelih\_94 Start: 51401, Stop: 51808, Start Num: 35  
Candidate Starts for Mareelih\_94:  
(Start: 34 @51398 has 4 MA's), (Start: 35 @51401 has 8 MA's), (Start: 40 @51437 has 1 MA's), (53, 51491), (57, 51512), (76, 51614), (79, 51626), (87, 51668), (88, 51677), (91, 51704), (98, 51746), (101, 51779), (102, 51791), (103, 51800),

Gene: McCrothy\_30 Start: 23959, Stop: 24393, Start Num: 32  
Candidate Starts for McCrothy\_30:  
(23, 23920), (Start: 32 @23959 has 92 MA's), (51, 24043), (81, 24220), (86, 24241), (98, 24313), (104, 24364),

Gene: McKinley\_32 Start: 24183, Stop: 24617, Start Num: 32

Candidate Starts for McKinley\_32:

(23, 24153), (Start: 32 @24183 has 92 MA's), (51, 24267), (62, 24342), (67, 24366), (81, 24444), (98, 24537), (104, 24588),

Gene: MelBins\_29 Start: 21614, Stop: 22045, Start Num: 32

Candidate Starts for MelBins\_29:

(6, 21422), (24, 21587), (Start: 32 @21614 has 92 MA's), (51, 21698), (66, 21794), (81, 21875), (83, 21881), (85, 21893), (96, 21953), (100, 21977), (103, 22016), (104, 22019),

Gene: Mimi\_87 Start: 52768, Stop: 53151, Start Num: 34

Candidate Starts for Mimi\_87:

(Start: 34 @52768 has 4 MA's), (Start: 40 @52807 has 1 MA's), (42, 52810), (60, 52909), (64, 52933), (76, 52984), (78, 52993), (91, 53047), (96, 53074), (97, 53086),

Gene: Mischief19\_27 Start: 29157, Stop: 29531, Start Num: 41

Candidate Starts for Mischief19\_27:

(Start: 41 @29157 has 4 MA's), (60, 29256), (75, 29316), (80, 29346), (82, 29370),

Gene: MoontowerMania\_29 Start: 22994, Stop: 23428, Start Num: 32

Candidate Starts for MoontowerMania\_29:

(10, 22829), (23, 22964), (Start: 32 @22994 has 92 MA's), (51, 23078), (62, 23153), (81, 23255), (86, 23276), (98, 23348), (104, 23399),

Gene: Mutzi\_28 Start: 18027, Stop: 18470, Start Num: 32

Candidate Starts for Mutzi\_28:

(3, 17811), (Start: 32 @18027 has 92 MA's), (104, 18444),

Gene: Natkenzie\_30 Start: 22964, Stop: 23395, Start Num: 32

Candidate Starts for Natkenzie\_30:

(20, 22904), (24, 22937), (Start: 32 @22964 has 92 MA's), (58, 23093), (62, 23123), (81, 23225), (83, 23231), (86, 23246), (96, 23303), (98, 23318), (103, 23366), (104, 23369),

Gene: Nordenberg\_24 Start: 22353, Stop: 22787, Start Num: 32

Candidate Starts for Nordenberg\_24:

(23, 22323), (Start: 32 @22353 has 92 MA's), (51, 22437), (62, 22512), (67, 22536), (81, 22614), (98, 22707), (104, 22758),

Gene: Nubi\_26 Start: 17592, Stop: 18035, Start Num: 32

Candidate Starts for Nubi\_26:

(Start: 32 @17592 has 92 MA's), (81, 17853), (104, 18009),

Gene: Panchaali\_85 Start: 49870, Stop: 50250, Start Num: 35

Candidate Starts for Panchaali\_85:

(Start: 35 @49870 has 8 MA's), (37, 49879), (Start: 40 @49906 has 1 MA's), (42, 49909), (73, 50062), (78, 50092), (98, 50188),

Gene: Paries\_32 Start: 23819, Stop: 24253, Start Num: 32

Candidate Starts for Paries\_32:

(23, 23780), (Start: 32 @23819 has 92 MA's), (51, 23903), (62, 23978), (67, 24002), (81, 24080), (86, 24101), (98, 24173), (104, 24224),

Gene: Patbob\_88 Start: 53640, Stop: 54023, Start Num: 34

Candidate Starts for Patbob\_88:

(Start: 34 @53640 has 4 MA's), (Start: 40 @53679 has 1 MA's), (60, 53781), (64, 53805), (71, 53826), (76, 53856), (78, 53865), (91, 53919), (96, 53946), (97, 53958),

Gene: PauloDiaboli\_94 Start: 50046, Stop: 50456, Start Num: 27

Candidate Starts for PauloDiaboli\_94:

(Start: 27 @50046 has 2 MA's), (48, 50133), (49, 50136), (55, 50166), (96, 50376), (99, 50394),

Gene: Phauci\_21 Start: 17995, Stop: 18426, Start Num: 32

Candidate Starts for Phauci\_21:

(6, 17803), (24, 17968), (Start: 32 @17995 has 92 MA's), (51, 18079), (66, 18175), (81, 18256), (83, 18262), (85, 18274), (96, 18334), (100, 18358), (103, 18397), (104, 18400),

Gene: Phinally\_28 Start: 21403, Stop: 21834, Start Num: 32

Candidate Starts for Phinally\_28:

(2, 21175), (6, 21211), (24, 21376), (25, 21379), (Start: 32 @21403 has 92 MA's), (51, 21487), (66, 21583), (81, 21664), (83, 21670), (85, 21682), (96, 21742), (100, 21766), (103, 21805), (104, 21808),

Gene: Phlop\_26 Start: 17656, Stop: 18099, Start Num: 32

Candidate Starts for Phlop\_26:

(Start: 32 @17656 has 92 MA's), (81, 17917), (104, 18073),

Gene: Phrampa\_81 Start: 50368, Stop: 50751, Start Num: 34

Candidate Starts for Phrampa\_81:

(Start: 34 @50368 has 4 MA's), (Start: 40 @50407 has 1 MA's), (58, 50488), (60, 50509), (64, 50533), (77, 50590), (78, 50593), (91, 50647), (96, 50674),

Gene: PinkCoffee\_28 Start: 18295, Stop: 18738, Start Num: 32

Candidate Starts for PinkCoffee\_28:

(Start: 32 @18295 has 92 MA's), (81, 18556), (104, 18712),

Gene: Portcullis\_26 Start: 17599, Stop: 18042, Start Num: 32

Candidate Starts for Portcullis\_26:

(Start: 32 @17599 has 92 MA's), (81, 17860), (104, 18016),

Gene: PullumCavea\_26 Start: 17656, Stop: 18099, Start Num: 32

Candidate Starts for PullumCavea\_26:

(Start: 32 @17656 has 92 MA's), (81, 17917), (104, 18073),

Gene: Pumpernickel\_91 Start: 51418, Stop: 51831, Start Num: 26

Candidate Starts for Pumpernickel\_91:

(Start: 26 @51418 has 1 MA's), (48, 51508), (55, 51541), (58, 51565), (60, 51586), (78, 51670), (95, 51748), (98, 51766), (99, 51769),

Gene: Pumpkiney\_31 Start: 20284, Stop: 20715, Start Num: 32

Candidate Starts for Pumpkiney\_31:

(7, 20098), (16, 20158), (20, 20224), (24, 20257), (Start: 32 @20284 has 92 MA's), (58, 20413), (62, 20443), (81, 20545), (83, 20551), (86, 20566), (96, 20623), (98, 20638), (103, 20686), (104, 20689),

Gene: Racecar\_88 Start: 53421, Stop: 53804, Start Num: 34

Candidate Starts for Racecar\_88:

(Start: 34 @53421 has 4 MA's), (Start: 40 @53460 has 1 MA's), (42, 53463), (60, 53562), (64, 53586), (76, 53637), (78, 53646), (91, 53700), (96, 53727), (97, 53739),

Gene: RainyPolka\_20 Start: 19600, Stop: 19980, Start Num: 39

Candidate Starts for RainyPolka\_20:

(4, 19327), (13, 19408), (Start: 39 @19600 has 8 MA's), (45, 19615), (54, 19657), (60, 19702), (70, 19744), (84, 19822), (90, 19873), (93, 19888), (97, 19915), (98, 19918),

Gene: ReginaGlobina\_87 Start: 52911, Stop: 53291, Start Num: 35

Candidate Starts for ReginaGlobina\_87:

(Start: 35 @52911 has 8 MA's), (37, 52920), (Start: 40 @52947 has 1 MA's), (69, 53088), (78, 53133), (89, 53166), (98, 53229),

Gene: RoadKill\_25 Start: 19107, Stop: 19538, Start Num: 32

Candidate Starts for RoadKill\_25:

(8, 18933), (15, 18984), (Start: 32 @19107 has 92 MA's), (51, 19191), (62, 19266), (85, 19386), (88, 19401), (98, 19461), (102, 19500), (103, 19509), (104, 19512),

Gene: Rockabye\_89 Start: 55651, Stop: 56040, Start Num: 35

Candidate Starts for Rockabye\_89:

(Start: 35 @55651 has 8 MA's), (48, 55711), (53, 55741), (59, 55774), (78, 55873), (91, 55927), (96, 55954), (97, 55966), (102, 56014),

Gene: Rofo\_30 Start: 23214, Stop: 23648, Start Num: 32

Candidate Starts for Rofo\_30:

(23, 23184), (Start: 32 @23214 has 92 MA's), (51, 23298), (62, 23373), (67, 23397), (81, 23475), (98, 23568), (104, 23619),

Gene: RogerDodger\_29 Start: 18449, Stop: 18892, Start Num: 32

Candidate Starts for RogerDodger\_29:

(Start: 32 @18449 has 92 MA's), (81, 18710), (104, 18866),

Gene: SJReid\_90 Start: 54733, Stop: 55122, Start Num: 35

Candidate Starts for SJReid\_90:

(Start: 35 @54733 has 8 MA's), (47, 54790), (64, 54895), (65, 54898), (78, 54955), (91, 55009), (96, 55036), (97, 55048), (102, 55096),

Gene: Salete\_19 Start: 19235, Stop: 19615, Start Num: 39

Candidate Starts for Salete\_19:

(1, 18785), (13, 19067), (Start: 39 @19235 has 8 MA's), (45, 19250), (54, 19292), (60, 19337), (80, 19427), (84, 19457), (90, 19508), (93, 19523), (97, 19550), (98, 19553),

Gene: Salvador\_26 Start: 17570, Stop: 18013, Start Num: 32

Candidate Starts for Salvador\_26:

(Start: 32 @17570 has 92 MA's), (81, 17831), (104, 17987),

Gene: Sampson\_30 Start: 22909, Stop: 23340, Start Num: 32

Candidate Starts for Sampson\_30:

(20, 22849), (24, 22882), (Start: 32 @22909 has 92 MA's), (58, 23038), (62, 23068), (81, 23170), (83, 23176), (86, 23191), (96, 23248), (98, 23263), (103, 23311), (104, 23314),

Gene: Sanjuju\_28 Start: 23395, Stop: 23829, Start Num: 32

Candidate Starts for Sanjuju\_28:

(23, 23365), (Start: 32 @23395 has 92 MA's), (51, 23479), (62, 23554), (67, 23578), (81, 23656), (86, 23677), (98, 23749), (104, 23800),

Gene: Savbucketdawg\_26 Start: 17351, Stop: 17794, Start Num: 32

Candidate Starts for Savbucketdawg\_26:

(Start: 32 @17351 has 92 MA's), (81, 17612), (104, 17768),

Gene: Scioto\_30 Start: 22964, Stop: 23395, Start Num: 32

Candidate Starts for Scioto\_30:

(20, 22904), (24, 22937), (Start: 32 @22964 has 92 MA's), (58, 23093), (62, 23123), (81, 23225), (83, 23231), (86, 23246), (96, 23303), (98, 23318), (103, 23366), (104, 23369),

Gene: Sedona\_30 Start: 24320, Stop: 24754, Start Num: 32

Candidate Starts for Sedona\_30:

(Start: 32 @24320 has 92 MA's), (51, 24404), (62, 24479), (67, 24503), (81, 24581), (86, 24602), (96, 24659), (98, 24674), (104, 24725),

Gene: Shinji\_26 Start: 17540, Stop: 17983, Start Num: 32

Candidate Starts for Shinji\_26:

(Start: 32 @17540 has 92 MA's), (81, 17801), (104, 17957),

Gene: Shivanishola\_31 Start: 23294, Stop: 23728, Start Num: 32

Candidate Starts for Shivanishola\_31:

(23, 23264), (Start: 32 @23294 has 92 MA's), (51, 23378), (62, 23453), (67, 23477), (81, 23555), (86, 23576), (98, 23648), (104, 23699),

Gene: Sitar\_30 Start: 24387, Stop: 24821, Start Num: 32

Candidate Starts for Sitar\_30:

(23, 24357), (Start: 32 @24387 has 92 MA's), (51, 24471), (62, 24546), (81, 24648), (86, 24669), (98, 24741), (104, 24792),

Gene: Sixama\_94 Start: 51509, Stop: 51916, Start Num: 35

Candidate Starts for Sixama\_94:

(Start: 34 @51506 has 4 MA's), (Start: 35 @51509 has 8 MA's), (Start: 40 @51545 has 1 MA's), (55, 51602), (87, 51776), (88, 51785), (92, 51821), (94, 51833), (98, 51854), (101, 51887), (102, 51899), (103, 51908),

Gene: SmokingBunny\_26 Start: 17570, Stop: 18013, Start Num: 32

Candidate Starts for SmokingBunny\_26:

(Start: 32 @17570 has 92 MA's), (81, 17831), (104, 17987),

Gene: Stewart25555\_78 Start: 49328, Stop: 49672, Start Num: 40

Candidate Starts for Stewart25555\_78:

(Start: 35 @49292 has 8 MA's), (37, 49301), (Start: 40 @49328 has 1 MA's), (78, 49514), (98, 49610),

Gene: Stultus\_28 Start: 22302, Stop: 22736, Start Num: 32

Candidate Starts for Stultus\_28:

(23, 22272), (Start: 32 @22302 has 92 MA's), (51, 22386), (62, 22461), (67, 22485), (81, 22563), (86, 22584), (98, 22656), (104, 22707),

Gene: TP1604\_19 Start: 19235, Stop: 19615, Start Num: 39

Candidate Starts for TP1604\_19:

(1, 18785), (13, 19067), (Start: 39 @19235 has 8 MA's), (45, 19250), (54, 19292), (60, 19337), (80, 19427), (84, 19457), (90, 19508), (93, 19523), (97, 19550), (98, 19553),

Gene: Talia1610\_87 Start: 52786, Stop: 53169, Start Num: 34

Candidate Starts for Talia1610\_87:

(Start: 34 @52786 has 4 MA's), (Start: 40 @52825 has 1 MA's), (60, 52927), (64, 52951), (71, 52972), (76, 53002), (78, 53011), (91, 53065), (96, 53092), (97, 53104),

Gene: Tangent\_30 Start: 22736, Stop: 23170, Start Num: 32

Candidate Starts for Tangent\_30:

(23, 22706), (Start: 32 @22736 has 92 MA's), (51, 22820), (62, 22895), (67, 22919), (81, 22997), (98, 23090), (104, 23141),

Gene: Tardus\_31 Start: 22245, Stop: 22676, Start Num: 32

Candidate Starts for Tardus\_31:

(24, 22218), (Start: 32 @22245 has 92 MA's), (51, 22329), (58, 22374), (62, 22404), (81, 22506), (83, 22512), (86, 22527), (96, 22584), (98, 22599), (103, 22647), (104, 22650),

Gene: Thing3\_29 Start: 23229, Stop: 23663, Start Num: 32

Candidate Starts for Thing3\_29:

(23, 23199), (Start: 32 @23229 has 92 MA's), (51, 23313), (62, 23388), (67, 23412), (81, 23490), (86, 23511), (98, 23583), (104, 23634),

Gene: Tiamoceli\_28 Start: 20458, Stop: 20889, Start Num: 32

Candidate Starts for Tiamoceli\_28:

(9, 20290), (Start: 32 @20458 has 92 MA's), (51, 20542), (62, 20617), (85, 20737), (88, 20752), (98, 20812), (100, 20821), (103, 20860), (104, 20863),

Gene: TillyBobJoe\_26 Start: 17354, Stop: 17797, Start Num: 32

Candidate Starts for TillyBobJoe\_26:

(Start: 32 @17354 has 92 MA's), (81, 17615), (104, 17771),

Gene: Togo\_26 Start: 17570, Stop: 18013, Start Num: 32

Candidate Starts for Togo\_26:

(Start: 32 @17570 has 92 MA's), (81, 17831), (104, 17987),

Gene: TurkishDelight\_25 Start: 21435, Stop: 21812, Start Num: 41

Candidate Starts for TurkishDelight\_25:

(13, 21273), (21, 21360), (30, 21411), (Start: 41 @21435 has 4 MA's), (44, 21441), (45, 21447), (46, 21453), (60, 21534), (68, 21570), (71, 21582), (74, 21594), (81, 21648), (96, 21735), (97, 21747), (101, 21783),

Gene: Twister6\_28 Start: 17997, Stop: 18440, Start Num: 32

Candidate Starts for Twister6\_28:

(Start: 32 @17997 has 92 MA's), (81, 18258), (104, 18414),

Gene: Twonlo\_25 Start: 19076, Stop: 19507, Start Num: 32

Candidate Starts for Twonlo\_25:

(Start: 32 @19076 has 92 MA's), (51, 19160), (62, 19235), (85, 19355), (88, 19370), (98, 19430), (100, 19439), (103, 19478), (104, 19481),

Gene: Valary\_29 Start: 18503, Stop: 18946, Start Num: 32

Candidate Starts for Valary\_29:

(Start: 32 @18503 has 92 MA's), (81, 18764), (104, 18920),

Gene: VanDeWege\_29 Start: 18378, Stop: 18821, Start Num: 32

Candidate Starts for VanDeWege\_29:

(Start: 32 @18378 has 92 MA's), (81, 18639), (104, 18795),

Gene: Verity\_29 Start: 23097, Stop: 23528, Start Num: 32

Candidate Starts for Verity\_29:

(24, 23070), (Start: 32 @23097 has 92 MA's), (51, 23181), (56, 23211), (58, 23226), (62, 23256), (66, 23277), (81, 23358), (83, 23364), (88, 23391), (96, 23436), (98, 23451), (103, 23499), (104, 23502),

Gene: ViaConlectus\_30 Start: 21588, Stop: 22019, Start Num: 32

Candidate Starts for ViaConlectus\_30:

(20, 21528), (24, 21561), (Start: 32 @21588 has 92 MA's), (58, 21717), (62, 21747), (81, 21849), (83, 21855), (86, 21870), (96, 21927), (98, 21942), (103, 21990), (104, 21993),

Gene: Vivi2\_32 Start: 23909, Stop: 24343, Start Num: 32

Candidate Starts for Vivi2\_32:

(23, 23879), (Start: 32 @23909 has 92 MA's), (51, 23993), (62, 24068), (67, 24092), (81, 24170), (86, 24191), (98, 24263), (104, 24314),

Gene: WaddleDee\_75 Start: 48766, Stop: 49110, Start Num: 40

Candidate Starts for WaddleDee\_75:

(Start: 35 @48730 has 8 MA's), (Start: 40 @48766 has 1 MA's), (59, 48853), (72, 48916), (76, 48943), (78, 48952), (98, 49048),

Gene: Wizard\_26 Start: 17704, Stop: 18147, Start Num: 32

Candidate Starts for Wizard\_26:

(Start: 32 @17704 has 92 MA's), (81, 17965), (104, 18121),

Gene: Xkcd426\_25 Start: 26648, Stop: 27025, Start Num: 41

Candidate Starts for Xkcd426\_25:

(Start: 27 @26606 has 2 MA's), (Start: 41 @26648 has 4 MA's), (45, 26660), (60, 26747), (75, 26807), (84, 26867), (90, 26918), (97, 26960), (101, 26996),

Gene: YDN12\_20 Start: 19174, Stop: 19551, Start Num: 41

Candidate Starts for YDN12\_20:

(13, 19003), (Start: 41 @19174 has 4 MA's), (45, 19186), (50, 19207), (54, 19228), (60, 19273), (80, 19363), (84, 19393), (90, 19444), (93, 19459), (97, 19486), (98, 19489),

Gene: YorkOnyx\_30 Start: 22083, Stop: 22517, Start Num: 32

Candidate Starts for YorkOnyx\_30:

(Start: 32 @22083 has 92 MA's), (43, 22137), (51, 22167), (64, 22257), (66, 22263), (81, 22344), (86, 22365), (98, 22437), (104, 22488),

Gene: YungMoney\_28 Start: 19070, Stop: 19513, Start Num: 32

Candidate Starts for YungMoney\_28:

(Start: 32 @19070 has 92 MA's), (104, 19487),

Gene: Zipp\_29 Start: 22994, Stop: 23425, Start Num: 32

Candidate Starts for Zipp\_29:

(24, 22967), (Start: 32 @22994 has 92 MA's), (56, 23108), (58, 23123), (62, 23153), (66, 23174), (81, 23255), (83, 23261), (88, 23288), (96, 23333), (98, 23348), (103, 23396), (104, 23399),

Gene: Zitch\_31 Start: 20868, Stop: 21299, Start Num: 32

Candidate Starts for Zitch\_31:

(24, 20841), (Start: 32 @20868 has 92 MA's), (51, 20952), (58, 20997), (62, 21027), (66, 21048), (81, 21129), (83, 21135), (86, 21150), (96, 21207), (98, 21222), (103, 21270), (104, 21273),

Gene: Zooman\_79 Start: 48365, Stop: 48775, Start Num: 28

Candidate Starts for Zooman\_79:

(Start: 28 @48365 has 2 MA's), (33, 48386), (Start: 40 @48425 has 1 MA's), (49, 48452), (51, 48461), (53, 48479), (64, 48551), (95, 48692), (99, 48713),