



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 171502 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171502 has 56 members, 3 are drafts.

Phages represented in each track:

- Track 1 : GuyFagieri\_42
- Track 2 : Apiary\_42, Braxoaddie\_42, Polyuyuki\_42
- Track 3 : CoffeeBean\_42, Maselop\_42
- Track 4 : MacGully\_47
- Track 5 : Flapper\_42
- Track 6 : GRU1\_27
- Track 7 : Turuncu\_42
- Track 8 : GTE5\_28
- Track 9 : Dalilpop\_43
- Track 10 : NatB6\_37, Kurt\_38, Jifall16\_37, Tracker\_38, Wheezy\_38, Foxboro\_39, Emianna\_38
- Track 11 : Buggaboo\_39, NosilaM\_41, SuperSulley\_39
- Track 12 : NovumRegina\_38, GrootJr\_40, Arti\_38
- Track 13 : Outis\_39, StarStruck\_39
- Track 14 : KidneyBean\_38
- Track 15 : Bonum\_41
- Track 16 : GTE8\_27
- Track 17 : MerCougar\_39
- Track 18 : Commandaria\_40
- Track 19 : Kabluna\_41
- Track 20 : Lollipop1437\_43, Ennea\_44, Patio\_41
- Track 21 : Float294\_40, Skysand\_40
- Track 22 : NadineRae\_38
- Track 23 : Yndexa\_40, IDyn\_39, BiPauneto\_41, Marietta\_40, Sukkupi\_40, WhoseManz\_40
- Track 24 : Fury\_47, Pleakley\_47
- Track 25 : C3PO\_27, Cruella\_28
- Track 26 : PeteyPab\_30, PotatoChip\_30, Zion\_30
- Track 27 : Stickynote\_30
- Track 28 : Darwin\_30, Kimchi1738\_28
- Track 29 : ChewyVIII\_53

***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 38 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Apiary\_42, Arti\_38, Bonum\_41, Braxoaddie\_42, Buggaboo\_39, ChewyVIII\_53, CoffeeBean\_42, Commandaria\_40, Dalilpop\_43, Emianna\_38, Ennea\_44, Flapper\_42, Float294\_40, Foxboro\_39, Fury\_47, GRU1\_27, GTE5\_28, GTE8\_27, GrootJr\_40, GuyFagieri\_42, Jifall16\_37, Kabluna\_41, KidneyBean\_38, Kurt\_38, Lollipop1437\_43, MacGully\_47, Maselop\_42, MerCougar\_39, NatB6\_37, NosilaM\_41, NovumRegina\_38, Outis\_39, Patio\_41, Pleakley\_47, Polyyuki\_42, Skysand\_40, StarStruck\_39, SuperSulley\_39, Tracker\_38, Turuncu\_42, Wheezy\_38,

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

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

- BiPauneto\_41, C3PO\_27, Cruella\_28, Darwin\_30, IDyn\_39, Kimchi1738\_28, Marietta\_40, NadineRae\_38, PeteyPab\_30, PotatoChip\_30, Stickynote\_30, Sukkupi\_40, WhoseManz\_40, Yndexa\_40, Zion\_30,

### Summary by start number:

Start 3:

- Found in 7 of 56 ( 12.5% ) of genes in pham
- Manual Annotations of this start: 7 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BiPauneto\_41 (CR4), IDyn\_39 (CR4), Marietta\_40 (CR4), NadineRae\_38 (CR4), Sukkupi\_40 (CR4), WhoseManz\_40 (CR4), Yndexa\_40 (CR4),

Start 4:

- Found in 41 of 56 ( 73.2% ) of genes in pham
- Manual Annotations of this start: 38 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_42 (CR), Arti\_38 (CR2), Bonum\_41 (CR2), Braxoaddie\_42 (CR), Buggaboo\_39 (CR2), ChewyVIII\_53 (singleton), CoffeeBean\_42 (CR), Commandaria\_40 (CR2), Dalilpop\_43 (CR1), Emianna\_38 (CR2), Ennea\_44 (CR3), Flapper\_42 (CR1), Float294\_40 (CR3), Foxboro\_39 (CR2), Fury\_47 (CR5), GRU1\_27 (CR1), GTE5\_28 (CR1), GTE8\_27 (CR2), GrootJr\_40 (CR2), GuyFagieri\_42 (CR), Jifall16\_37 (CR2), Kabluna\_41 (CR2), KidneyBean\_38 (CR2), Kurt\_38 (CR2), Lollipop1437\_43 (CR3), MacGully\_47 (CR), Maselop\_42 (CR), MerCougar\_39 (CR2), NatB6\_37 (CR2), NosilaM\_41 (CR2), NovumRegina\_38 (CR2), Outis\_39 (CR2), Patio\_41 (CR3), Pleakley\_47 (CR5), Polyyuki\_42 (CR), Skysand\_40 (CR3), StarStruck\_39 (CR2), SuperSulley\_39 (CR2), Tracker\_38 (CR2), Turuncu\_42 (CR1), Wheezy\_38 (CR2),

Start 5:

- Found in 8 of 56 ( 14.3% ) of genes in pham
- Manual Annotations of this start: 8 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_27 (EN), Cruella\_28 (EN), Darwin\_30 (EN), Kimchi1738\_28 (EN), PeteyPab\_30 (EN), PotatoChip\_30 (EN), Stickynote\_30 (EN), Zion\_30 (EN),

## Summary by clusters:

There are 8 clusters represented in this pham: CR2, CR3, singleton, EN, CR4, CR5, CR1, CR,

Info for manual annotations of cluster CR:

- Start number 4 was manually annotated 7 times for cluster CR.

Info for manual annotations of cluster CR1:

- Start number 4 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 4 was manually annotated 20 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 4 was manually annotated 5 times for cluster CR3.

Info for manual annotations of cluster CR4:

- Start number 3 was manually annotated 7 times for cluster CR4.

Info for manual annotations of cluster CR5:

- Start number 4 was manually annotated 2 times for cluster CR5.

Info for manual annotations of cluster EN:

- Start number 5 was manually annotated 8 times for cluster EN.

## Gene Information:

Gene: Apiary\_42 Start: 24321, Stop: 25141, Start Num: 4

Candidate Starts for Apiary\_42:

(1, 23934), (2, 23958), (Start: 4 @24321 has 38 MA's), (8, 24420), (9, 24444), (10, 24450), (22, 24576), (24, 24609), (53, 24963), (63, 25116),

Gene: Arti\_38 Start: 22581, Stop: 23383, Start Num: 4

Candidate Starts for Arti\_38:

(Start: 4 @22581 has 38 MA's), (10, 22713), (14, 22749), (19, 22794), (22, 22839), (24, 22872), (34, 22962), (63, 23361),

Gene: BiPauneto\_41 Start: 22337, Stop: 23145, Start Num: 3

Candidate Starts for BiPauneto\_41:

(Start: 3 @22337 has 7 MA's), (7, 22412), (10, 22472), (12, 22499), (22, 22598), (29, 22691), (34, 22721), (63, 23123),

Gene: Bonum\_41 Start: 22920, Stop: 23722, Start Num: 4

Candidate Starts for Bonum\_41:

(Start: 4 @22920 has 38 MA's), (10, 23052), (22, 23178), (38, 23358), (62, 23688),

Gene: Braxoaddie\_42 Start: 24310, Stop: 25130, Start Num: 4

Candidate Starts for Braxoaddie\_42:

(1, 23923), (2, 23947), (Start: 4 @24310 has 38 MA's), (8, 24409), (9, 24433), (10, 24439), (22, 24565), (24, 24598), (53, 24952), (63, 25105),

Gene: Buggaboo\_39 Start: 23405, Stop: 24210, Start Num: 4

Candidate Starts for Buggaboo\_39:

(Start: 4 @23405 has 38 MA's), (10, 23537), (22, 23663),

Gene: C3PO\_27 Start: 20302, Stop: 21122, Start Num: 5

Candidate Starts for C3PO\_27:

(Start: 5 @20302 has 8 MA's), (6, 20320), (9, 20440), (13, 20476), (17, 20521), (20, 20551), (22, 20575), (23, 20602), (26, 20641), (27, 20650), (39, 20788), (51, 20878), (53, 20944), (54, 20947), (55, 20956), (57, 20989), (61, 21076),

Gene: ChewyVIII\_53 Start: 31497, Stop: 32314, Start Num: 4

Candidate Starts for ChewyVIII\_53:

(Start: 4 @31497 has 38 MA's), (15, 31674), (17, 31710), (22, 31764), (24, 31803), (33, 31887), (35, 31902), (52, 32127),

Gene: CoffeeBean\_42 Start: 24265, Stop: 25088, Start Num: 4

Candidate Starts for CoffeeBean\_42:

(1, 23878), (2, 23902), (Start: 4 @24265 has 38 MA's), (8, 24364), (9, 24388), (10, 24394), (22, 24520), (24, 24553), (43, 24763), (53, 24910), (63, 25063),

Gene: Commandaria\_40 Start: 23900, Stop: 24714, Start Num: 4

Candidate Starts for Commandaria\_40:

(Start: 4 @23900 has 38 MA's), (10, 24032), (21, 24146), (22, 24158), (24, 24191), (28, 24239), (34, 24281), (40, 24380), (63, 24692),

Gene: Cruella\_28 Start: 20302, Stop: 21122, Start Num: 5

Candidate Starts for Cruella\_28:

(Start: 5 @20302 has 8 MA's), (6, 20320), (9, 20440), (13, 20476), (17, 20521), (20, 20551), (22, 20575), (23, 20602), (26, 20641), (27, 20650), (39, 20788), (51, 20878), (53, 20944), (54, 20947), (55, 20956), (57, 20989), (61, 21076),

Gene: Dalilpop\_43 Start: 24905, Stop: 25716, Start Num: 4

Candidate Starts for Dalilpop\_43:

(Start: 4 @24905 has 38 MA's), (10, 25037), (17, 25109), (20, 25139), (22, 25163), (24, 25196), (30, 25265), (32, 25277), (47, 25451), (63, 25694),

Gene: Darwin\_30 Start: 19987, Stop: 20807, Start Num: 5

Candidate Starts for Darwin\_30:

(Start: 5 @19987 has 8 MA's), (6, 20005), (9, 20125), (13, 20161), (17, 20206), (20, 20236), (22, 20260), (23, 20287), (26, 20326), (27, 20335), (39, 20473), (41, 20485), (51, 20563), (53, 20629), (54, 20632), (55, 20641), (57, 20674), (61, 20761),

Gene: Emianna\_38 Start: 23597, Stop: 24402, Start Num: 4

Candidate Starts for Emianna\_38:

(Start: 4 @23597 has 38 MA's), (10, 23729), (14, 23765), (19, 23810), (22, 23855), (24, 23888), (34, 23978), (57, 24272), (63, 24380),

Gene: Ennea\_44 Start: 24223, Stop: 25034, Start Num: 4

Candidate Starts for Ennea\_44:

(Start: 4 @24223 has 38 MA's), (10, 24355), (18, 24433), (19, 24436), (22, 24481), (30, 24583), (32, 24595), (63, 25012),

Gene: Flapper\_42 Start: 23966, Stop: 24777, Start Num: 4

Candidate Starts for Flapper\_42:

(Start: 4 @23966 has 38 MA's), (10, 24098), (17, 24170), (20, 24200), (22, 24224), (24, 24257), (30, 24326), (32, 24338), (34, 24347), (47, 24512), (52, 24584), (57, 24647), (63, 24755),

Gene: Float294\_40 Start: 23662, Stop: 24473, Start Num: 4

Candidate Starts for Float294\_40:

(Start: 4 @23662 has 38 MA's), (10, 23794), (18, 23872), (19, 23875), (22, 23920), (30, 24022), (32, 24034), (42, 24154), (63, 24451),

Gene: Foxboro\_39 Start: 24103, Stop: 24908, Start Num: 4

Candidate Starts for Foxboro\_39:

(Start: 4 @24103 has 38 MA's), (10, 24235), (14, 24271), (19, 24316), (22, 24361), (24, 24394), (34, 24484), (57, 24778), (63, 24886),

Gene: Fury\_47 Start: 23325, Stop: 24127, Start Num: 4

Candidate Starts for Fury\_47:

(Start: 4 @23325 has 38 MA's), (10, 23457), (22, 23583), (24, 23616), (25, 23640), (48, 23868), (58, 24042), (63, 24105),

Gene: GRU1\_27 Start: 15854, Stop: 16665, Start Num: 4

Candidate Starts for GRU1\_27:

(Start: 4 @15854 has 38 MA's), (10, 15986), (17, 16058), (20, 16088), (22, 16112), (24, 16145), (30, 16214), (32, 16226), (37, 16280), (47, 16400), (48, 16403), (63, 16643),

Gene: GTE5\_28 Start: 16818, Stop: 17629, Start Num: 4

Candidate Starts for GTE5\_28:

(Start: 4 @16818 has 38 MA's), (10, 16950), (17, 17022), (20, 17052), (22, 17076), (24, 17109), (30, 17178), (32, 17190), (45, 17352), (47, 17364), (57, 17499), (63, 17607),

Gene: GTE8\_27 Start: 16862, Stop: 17667, Start Num: 4

Candidate Starts for GTE8\_27:

(Start: 4 @16862 has 38 MA's), (10, 16994), (14, 17030), (16, 17063), (19, 17075), (21, 17108), (22, 17120), (24, 17153), (34, 17243), (42, 17354), (60, 17618), (63, 17645),

Gene: GrootJr\_40 Start: 22976, Stop: 23778, Start Num: 4

Candidate Starts for GrootJr\_40:

(Start: 4 @22976 has 38 MA's), (10, 23108), (14, 23144), (19, 23189), (22, 23234), (24, 23267), (34, 23357), (63, 23756),

Gene: GuyFagieri\_42 Start: 24140, Stop: 24963, Start Num: 4

Candidate Starts for GuyFagieri\_42:

(Start: 4 @24140 has 38 MA's), (8, 24239), (9, 24263), (10, 24269), (22, 24395), (24, 24428), (49, 24692), (50, 24707), (63, 24938),

Gene: IDyn\_39 Start: 20751, Stop: 21559, Start Num: 3

Candidate Starts for IDyn\_39:

(Start: 3 @20751 has 7 MA's), (7, 20826), (10, 20886), (12, 20913), (22, 21012), (29, 21105), (34, 21135), (63, 21537),

Gene: Jifall16\_37 Start: 23251, Stop: 24056, Start Num: 4

Candidate Starts for Jifall16\_37:

(Start: 4 @23251 has 38 MA's), (10, 23383), (14, 23419), (19, 23464), (22, 23509), (24, 23542), (34, 23632), (57, 23926), (63, 24034),

Gene: Kabluna\_41 Start: 22320, Stop: 23125, Start Num: 4

Candidate Starts for Kabluna\_41:

(Start: 4 @22320 has 38 MA's), (10, 22452), (18, 22530), (22, 22578), (38, 22758),

Gene: KidneyBean\_38 Start: 23375, Stop: 24177, Start Num: 4

Candidate Starts for KidneyBean\_38:

(Start: 4 @23375 has 38 MA's), (10, 23507), (14, 23543), (19, 23588), (22, 23633), (24, 23666), (34, 23756), (42, 23867), (56, 24038), (57, 24047), (59, 24125), (63, 24155),

Gene: Kimchi1738\_28 Start: 19390, Stop: 20210, Start Num: 5

Candidate Starts for Kimchi1738\_28:

(Start: 5 @19390 has 8 MA's), (6, 19408), (9, 19528), (13, 19564), (17, 19609), (20, 19639), (22, 19663), (23, 19690), (26, 19729), (27, 19738), (39, 19876), (41, 19888), (51, 19966), (53, 20032), (54, 20035), (55, 20044), (57, 20077), (61, 20164),

Gene: Kurt\_38 Start: 23612, Stop: 24417, Start Num: 4

Candidate Starts for Kurt\_38:

(Start: 4 @23612 has 38 MA's), (10, 23744), (14, 23780), (19, 23825), (22, 23870), (24, 23903), (34, 23993), (57, 24287), (63, 24395),

Gene: Lollipop1437\_43 Start: 24211, Stop: 25022, Start Num: 4

Candidate Starts for Lollipop1437\_43:

(Start: 4 @24211 has 38 MA's), (10, 24343), (18, 24421), (19, 24424), (22, 24469), (30, 24571), (32, 24583), (63, 25000),

Gene: MacGully\_47 Start: 24813, Stop: 25627, Start Num: 4

Candidate Starts for MacGully\_47:

(Start: 4 @24813 has 38 MA's), (10, 24942), (11, 24966), (12, 24969), (22, 25068), (31, 25173), (44, 25335), (46, 25347), (63, 25602),

Gene: Marietta\_40 Start: 20667, Stop: 21475, Start Num: 3

Candidate Starts for Marietta\_40:

(Start: 3 @20667 has 7 MA's), (7, 20742), (10, 20802), (12, 20829), (22, 20928), (29, 21021), (34, 21051), (63, 21453),

Gene: Maselop\_42 Start: 24341, Stop: 25164, Start Num: 4

Candidate Starts for Maselop\_42:

(1, 23954), (2, 23978), (Start: 4 @24341 has 38 MA's), (8, 24440), (9, 24464), (10, 24470), (22, 24596), (24, 24629), (43, 24839), (53, 24986), (63, 25139),

Gene: MerCougar\_39 Start: 23519, Stop: 24324, Start Num: 4

Candidate Starts for MerCougar\_39:

(Start: 4 @23519 has 38 MA's), (10, 23651), (22, 23777), (24, 23810), (34, 23900), (36, 23918),

Gene: NadineRae\_38 Start: 19914, Stop: 20722, Start Num: 3

Candidate Starts for NadineRae\_38:

(Start: 3 @19914 has 7 MA's), (7, 19989), (10, 20049), (12, 20076), (22, 20175), (29, 20268), (34, 20298), (55, 20562), (63, 20700),

Gene: NatB6\_37 Start: 22648, Stop: 23453, Start Num: 4

Candidate Starts for NatB6\_37:

(Start: 4 @22648 has 38 MA's), (10, 22780), (14, 22816), (19, 22861), (22, 22906), (24, 22939), (34, 23029), (57, 23323), (63, 23431),

Gene: NosilaM\_41 Start: 23217, Stop: 24022, Start Num: 4

Candidate Starts for NosilaM\_41:

(Start: 4 @23217 has 38 MA's), (10, 23349), (22, 23475),

Gene: NovumRegina\_38 Start: 22975, Stop: 23777, Start Num: 4

Candidate Starts for NovumRegina\_38:

(Start: 4 @22975 has 38 MA's), (10, 23107), (14, 23143), (19, 23188), (22, 23233), (24, 23266), (34, 23356), (63, 23755),

Gene: Outis\_39 Start: 23207, Stop: 24012, Start Num: 4

Candidate Starts for Outis\_39:

(Start: 4 @23207 has 38 MA's), (10, 23339), (18, 23417), (22, 23465), (34, 23588), (36, 23606),

Gene: Patio\_41 Start: 23447, Stop: 24258, Start Num: 4

Candidate Starts for Patio\_41:

(Start: 4 @23447 has 38 MA's), (10, 23579), (18, 23657), (19, 23660), (22, 23705), (30, 23807), (32, 23819), (63, 24236),

Gene: PeteyPab\_30 Start: 21147, Stop: 21967, Start Num: 5

Candidate Starts for PeteyPab\_30:

(Start: 5 @21147 has 8 MA's), (6, 21165), (9, 21285), (13, 21321), (17, 21366), (20, 21396), (22, 21420), (23, 21447), (26, 21486), (27, 21495), (39, 21633), (51, 21723), (53, 21789), (54, 21792), (55, 21801), (57, 21834), (61, 21921),

Gene: Pleakley\_47 Start: 23326, Stop: 24128, Start Num: 4

Candidate Starts for Pleakley\_47:

(Start: 4 @23326 has 38 MA's), (10, 23458), (22, 23584), (24, 23617), (25, 23641), (48, 23869), (58, 24043), (63, 24106),

Gene: Polyzuki\_42 Start: 24333, Stop: 25153, Start Num: 4

Candidate Starts for Polyzuki\_42:

(1, 23946), (2, 23970), (Start: 4 @24333 has 38 MA's), (8, 24432), (9, 24456), (10, 24462), (22, 24588), (24, 24621), (53, 24975), (63, 25128),

Gene: PotatoChip\_30 Start: 21149, Stop: 21969, Start Num: 5

Candidate Starts for PotatoChip\_30:

(Start: 5 @21149 has 8 MA's), (6, 21167), (9, 21287), (13, 21323), (17, 21368), (20, 21398), (22, 21422), (23, 21449), (26, 21488), (27, 21497), (39, 21635), (51, 21725), (53, 21791), (54, 21794), (55, 21803), (57, 21836), (61, 21923),

Gene: Skysand\_40 Start: 23664, Stop: 24475, Start Num: 4

Candidate Starts for Skysand\_40:

(Start: 4 @23664 has 38 MA's), (10, 23796), (18, 23874), (19, 23877), (22, 23922), (30, 24024), (32, 24036), (42, 24156), (63, 24453),

Gene: StarStruck\_39 Start: 23207, Stop: 24012, Start Num: 4

Candidate Starts for StarStruck\_39:



(Start: 4 @23207 has 38 MA's), (10, 23339), (18, 23417), (22, 23465), (34, 23588), (36, 23606),

Gene: Stickynote\_30 Start: 20569, Stop: 21389, Start Num: 5

Candidate Starts for Stickynote\_30:

(Start: 5 @20569 has 8 MA's), (6, 20587), (9, 20707), (13, 20743), (17, 20788), (20, 20818), (22, 20842), (23, 20869), (26, 20908), (27, 20917), (39, 21055), (51, 21145), (54, 21214), (55, 21223), (57, 21256), (61, 21343),

Gene: Sukkupi\_40 Start: 22228, Stop: 23036, Start Num: 3

Candidate Starts for Sukkupi\_40:

(Start: 3 @22228 has 7 MA's), (7, 22303), (10, 22363), (12, 22390), (22, 22489), (29, 22582), (34, 22612), (63, 23014),

Gene: SuperSulley\_39 Start: 23405, Stop: 24210, Start Num: 4

Candidate Starts for SuperSulley\_39:

(Start: 4 @23405 has 38 MA's), (10, 23537), (22, 23663),

Gene: Tracker\_38 Start: 22375, Stop: 23180, Start Num: 4

Candidate Starts for Tracker\_38:

(Start: 4 @22375 has 38 MA's), (10, 22507), (14, 22543), (19, 22588), (22, 22633), (24, 22666), (34, 22756), (57, 23050), (63, 23158),

Gene: Turuncu\_42 Start: 23671, Stop: 24482, Start Num: 4

Candidate Starts for Turuncu\_42:

(Start: 4 @23671 has 38 MA's), (10, 23803), (17, 23875), (20, 23905), (22, 23929), (24, 23962), (30, 24031), (32, 24043), (47, 24217), (57, 24352), (63, 24460),

Gene: Wheezy\_38 Start: 22580, Stop: 23385, Start Num: 4

Candidate Starts for Wheezy\_38:

(Start: 4 @22580 has 38 MA's), (10, 22712), (14, 22748), (19, 22793), (22, 22838), (24, 22871), (34, 22961), (57, 23255), (63, 23363),

Gene: WhoseManz\_40 Start: 20280, Stop: 21088, Start Num: 3

Candidate Starts for WhoseManz\_40:

(Start: 3 @20280 has 7 MA's), (7, 20355), (10, 20415), (12, 20442), (22, 20541), (29, 20634), (34, 20664), (63, 21066),

Gene: Yndexa\_40 Start: 22228, Stop: 23036, Start Num: 3

Candidate Starts for Yndexa\_40:

(Start: 3 @22228 has 7 MA's), (7, 22303), (10, 22363), (12, 22390), (22, 22489), (29, 22582), (34, 22612), (63, 23014),

Gene: Zion\_30 Start: 21147, Stop: 21967, Start Num: 5

Candidate Starts for Zion\_30:

(Start: 5 @21147 has 8 MA's), (6, 21165), (9, 21285), (13, 21321), (17, 21366), (20, 21396), (22, 21420), (23, 21447), (26, 21486), (27, 21495), (39, 21633), (51, 21723), (53, 21789), (54, 21792), (55, 21801), (57, 21834), (61, 21921),