

Zoomed Pham 196576



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 196576 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196576 has 57 members, 17 are drafts.

Phages represented in each track:

- Track 1 : SilentRX_27
- Track 2 : AWGoat_25
- Track 3 : Romm_33
- Track 4 : FrankDeliGuy_30, Judebell_34
- Track 5 : DonaldDuck_32, Llemily_32
- Track 6 : EverythinBagel_32
- Track 7 : MorillMayhem_31, Lonelysoil_31, Wayne3_33, Casend_33, Wheelie_31, Phabia_32, Jehoshaphat_34, Teehee_33, Zhafia_35
- Track 8 : Tissue_32
- Track 9 : Quammi_30, Rudy_30, Rowlf_28, Viceroy_31, StrawberryJamm_34
- Track 10 : RubyRalph_34
- Track 11 : OneinaGillian_31, Fregley_32
- Track 12 : Altheas_34
- Track 13 : Kyva_34, Namago_32, Grassboy_33
- Track 14 : Hyperion_31, Zagie_32, AluminumJesus_30, Blab_30, Mashley_30
- Track 15 : Fizzles_32
- Track 16 : BabyDotz_31
- Track 17 : Marcie_36
- Track 18 : Kelcole_30, CandC_30, Tempo_31
- Track 19 : RobinRose_33
- Track 20 : Wilca_31, BirdInFrench_31
- Track 21 : SadLad_36
- Track 22 : Nike_32
- Track 23 : Pepe25_30
- Track 24 : SallyK_33
- Track 25 : Fransoyer_34
- Track 26 : Sillytadpoles_33
- Track 27 : Squash_34
- Track 28 : Statler_34
- Track 29 : Phinky_38
- Track 30 : Gazebo_31
- Track 31 : RomansRevenge_23
- Track 32 : phiAsp2_20
- Track 33 : Sunfish_40

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

The start number called the most often in the published annotations is 15, it was called in 39 of the 40 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AWGoat_25, Altheas_34, AluminumJesus_30, BabyDotz_31, BirdInFrench_31, Blab_30, CandC_30, Casend_33, DonaldDuck_32, EverythinBagel_32, Fizzles_32, FrankDeliGuy_30, Fransoyer_34, Fregley_32, Gazebo_31, Grassboy_33, Hyperion_31, Jehoshaphat_34, Judebell_34, Kelcole_30, Kyva_34, Llemily_32, Lonelysoil_31, Marcie_36, Mashley_30, MorillMayhem_31, Namago_32, Nike_32, OneinaGillian_31, Pepe25_30, Phabia_32, Phinky_38, Quammi_30, RomansRevenge_23, Romm_33, Rowlf_28, RubyRalph_34, Rudy_30, SadLad_36, SallyK_33, SilentRX_27, Sillytadpoles_33, Squash_34, Statler_34, StrawberryJamm_34, Sunfish_40, Teehee_33, Tempo_31, Tissue_32, Viceroy_31, Wayne3_33, Wheelie_31, Wilca_31, Zagie_32, Zhafia_35,

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

- RobinRose_33,

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

- phiAsp2_20,

Summary by start number:

Start 13:

- Found in 9 of 57 (15.8%) of genes in pham
- Manual Annotations of this start: 1 of 40
- Called 11.1% of time when present
- Phage (with cluster) where this start called: RobinRose_33 (EG),

Start 15:

- Found in 56 of 57 (98.2%) of genes in pham
- Manual Annotations of this start: 39 of 40
- Called 98.2% of time when present
- Phage (with cluster) where this start called: AWGoat_25 (AP4), Altheas_34 (EG), AluminumJesus_30 (EG), BabyDotz_31 (EG), BirdInFrench_31 (EG), Blab_30 (EG), CandC_30 (EG), Casend_33 (EG), DonaldDuck_32 (EG), EverythinBagel_32 (EG), Fizzles_32 (EG), FrankDeliGuy_30 (EG), Fransoyer_34 (EG), Fregley_32 (EG), Gazebo_31 (EG), Grassboy_33 (EG), Hyperion_31 (EG), Jehoshaphat_34 (EG), Judebell_34 (EG), Kelcole_30 (EG), Kyva_34 (EG), Llemily_32 (EG), Lonelysoil_31 (EG), Marcie_36 (EG), Mashley_30 (EG), MorillMayhem_31 (EG), Namago_32 (EG), Nike_32 (EG), OneinaGillian_31 (EG), Pepe25_30 (EG), Phabia_32 (EG), Phinky_38 (EG), Quammi_30 (EG), RomansRevenge_23 (singleton), Romm_33 (EG), Rowlf_28 (EG), RubyRalph_34 (EG), Rudy_30 (EG), SadLad_36 (EG), SallyK_33 (EG), SilentRX_27 (AP4), Sillytadpoles_33 (EG), Squash_34 (EG), Statler_34 (EG), StrawberryJamm_34 (EG), Sunfish_40 (singleton), Teehee_33 (EG), Tempo_31 (EG), Tissue_32 (EG), Viceroy_31 (EG), Wayne3_33 (EG), Wheelie_31 (EG), Wilca_31 (EG), Zagie_32 (EG), Zhafia_35 (EG),

Start 17:

- Found in 1 of 57 (1.8%) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: phiAsp2_20 (singleton),

Summary by clusters:

There are 3 clusters represented in this pham: EG, singleton, AP4,

Info for manual annotations of cluster AP4:

- Start number 15 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster EG:

- Start number 13 was manually annotated 1 time for cluster EG.
- Start number 15 was manually annotated 37 times for cluster EG.

Gene Information:

Gene: AWGoat_25 Start: 20372, Stop: 20869, Start Num: 15

Candidate Starts for AWGoat_25:

(Start: 15 @20372 has 39 MA's), (33, 20534), (35, 20561), (38, 20588), (41, 20621), (43, 20633), (44, 20636), (47, 20651), (51, 20678), (53, 20699), (56, 20714), (59, 20732), (60, 20738), (61, 20741), (72, 20819), (74, 20840),

Gene: Altheas_34 Start: 21898, Stop: 22431, Start Num: 15

Candidate Starts for Altheas_34:

(8, 21532), (10, 21667), (Start: 15 @21898 has 39 MA's), (31, 22072), (40, 22165), (57, 22279), (67, 22333), (69, 22345),

Gene: AluminumJesus_30 Start: 21395, Stop: 21925, Start Num: 15

Candidate Starts for AluminumJesus_30:

(Start: 15 @21395 has 39 MA's), (33, 21587), (40, 21659), (43, 21683), (57, 21773), (65, 21809), (67, 21827), (69, 21839),

Gene: BabyDotz_31 Start: 21663, Stop: 22193, Start Num: 15

Candidate Starts for BabyDotz_31:

(10, 21432), (Start: 15 @21663 has 39 MA's), (28, 21804), (33, 21855), (37, 21900), (40, 21927), (43, 21951), (46, 21963), (57, 22041), (65, 22077), (69, 22107), (75, 22170),

Gene: BirdInFrench_31 Start: 20336, Stop: 20827, Start Num: 15

Candidate Starts for BirdInFrench_31:

(1, 18518), (2, 19529), (4, 19676), (5, 19706), (7, 19838), (9, 19988), (10, 20111), (11, 20126), (Start: 15 @20336 has 39 MA's), (20, 20366), (40, 20567), (41, 20579), (42, 20585), (45, 20600), (55, 20669), (57, 20681), (71, 20774), (72, 20783),

Gene: Blab_30 Start: 21320, Stop: 21850, Start Num: 15

Candidate Starts for Blab_30:

(Start: 15 @21320 has 39 MA's), (33, 21512), (40, 21584), (43, 21608), (57, 21698), (65, 21734), (67, 21752), (69, 21764),

Gene: CandC_30 Start: 20030, Stop: 20527, Start Num: 15

Candidate Starts for CandC_30:

(5, 19397), (7, 19529), (10, 19802), (11, 19817), (Start: 13 @20015 has 1 MA's), (Start: 15 @20030 has 39 MA's), (23, 20102), (33, 20195), (40, 20267), (42, 20285), (55, 20369), (57, 20381), (58, 20387), (71, 20474), (72, 20483),

Gene: Casend_33 Start: 22072, Stop: 22602, Start Num: 15

Candidate Starts for Casend_33:

(10, 21841), (Start: 15 @22072 has 39 MA's), (28, 22213), (33, 22264), (37, 22309), (40, 22336), (43, 22360), (46, 22372), (57, 22450), (65, 22486), (67, 22504), (69, 22516), (75, 22579),

Gene: DonaldDuck_32 Start: 21418, Stop: 21948, Start Num: 15

Candidate Starts for DonaldDuck_32:

(Start: 15 @21418 has 39 MA's), (28, 21559), (33, 21610), (37, 21655), (40, 21682), (43, 21706), (46, 21718), (57, 21796), (65, 21832), (67, 21850), (69, 21862), (75, 21925),

Gene: EverythinBagel_32 Start: 21806, Stop: 22336, Start Num: 15

Candidate Starts for EverythinBagel_32:

(10, 21575), (Start: 15 @21806 has 39 MA's), (28, 21947), (33, 21998), (37, 22043), (40, 22070), (43, 22094), (46, 22106), (57, 22184), (65, 22220), (69, 22250), (75, 22313),

Gene: Fizzles_32 Start: 21131, Stop: 21658, Start Num: 15

Candidate Starts for Fizzles_32:

(10, 20903), (Start: 15 @21131 has 39 MA's), (16, 21140), (33, 21320), (37, 21365), (39, 21386), (40, 21392), (57, 21506), (67, 21560), (69, 21572),

Gene: FrankDeliGuy_30 Start: 21381, Stop: 21908, Start Num: 15

Candidate Starts for FrankDeliGuy_30:

(Start: 15 @21381 has 39 MA's), (33, 21570), (37, 21615), (40, 21642), (43, 21666), (57, 21756), (65, 21792), (67, 21810), (69, 21822), (75, 21885),

Gene: Fransoyer_34 Start: 21245, Stop: 21772, Start Num: 15

Candidate Starts for Fransoyer_34:

(14, 21239), (Start: 15 @21245 has 39 MA's), (20, 21281), (25, 21353), (27, 21371), (40, 21512), (43, 21536), (57, 21626), (59, 21635), (72, 21728),

Gene: Fregley_32 Start: 20600, Stop: 21097, Start Num: 15

Candidate Starts for Fregley_32:

(10, 20372), (11, 20387), (Start: 13 @20585 has 1 MA's), (Start: 15 @20600 has 39 MA's), (23, 20672), (40, 20837), (42, 20855), (55, 20939), (57, 20951), (58, 20957), (71, 21044), (72, 21053),

Gene: Gazebo_31 Start: 21858, Stop: 22388, Start Num: 15

Candidate Starts for Gazebo_31:

(Start: 15 @21858 has 39 MA's), (33, 22050), (40, 22122), (43, 22146), (57, 22236), (65, 22272), (67, 22290), (69, 22302),

Gene: Grassboy_33 Start: 22032, Stop: 22562, Start Num: 15

Candidate Starts for Grassboy_33:

(10, 21801), (Start: 15 @22032 has 39 MA's), (33, 22224), (40, 22296), (43, 22320), (57, 22410), (65, 22446), (67, 22464), (69, 22476),

Gene: Hyperion_31 Start: 21815, Stop: 22345, Start Num: 15

Candidate Starts for Hyperion_31:

(Start: 15 @21815 has 39 MA's), (33, 22007), (40, 22079), (43, 22103), (57, 22193), (65, 22229), (67, 22247), (69, 22259),

Gene: Jehoshaphat_34 Start: 22337, Stop: 22867, Start Num: 15

Candidate Starts for Jehoshaphat_34:

(10, 22106), (Start: 15 @22337 has 39 MA's), (28, 22478), (33, 22529), (37, 22574), (40, 22601), (43, 22625), (46, 22637), (57, 22715), (65, 22751), (67, 22769), (69, 22781), (75, 22844),

Gene: Judebell_34 Start: 21846, Stop: 22373, Start Num: 15

Candidate Starts for Judebell_34:

(Start: 15 @21846 has 39 MA's), (33, 22035), (37, 22080), (40, 22107), (43, 22131), (57, 22221), (65, 22257), (67, 22275), (69, 22287), (75, 22350),

Gene: Kelcole_30 Start: 20482, Stop: 20979, Start Num: 15

Candidate Starts for Kelcole_30:

(5, 19849), (7, 19981), (10, 20254), (11, 20269), (Start: 13 @20467 has 1 MA's), (Start: 15 @20482 has 39 MA's), (23, 20554), (33, 20647), (40, 20719), (42, 20737), (55, 20821), (57, 20833), (58, 20839), (71, 20926), (72, 20935),

Gene: Kyva_34 Start: 22067, Stop: 22597, Start Num: 15

Candidate Starts for Kyva_34:

(10, 21836), (Start: 15 @22067 has 39 MA's), (33, 22259), (40, 22331), (43, 22355), (57, 22445), (65, 22481), (67, 22499), (69, 22511),

Gene: Llemily_32 Start: 21113, Stop: 21643, Start Num: 15

Candidate Starts for Llemily_32:

(Start: 15 @21113 has 39 MA's), (28, 21254), (33, 21305), (37, 21350), (40, 21377), (43, 21401), (46, 21413), (57, 21491), (65, 21527), (67, 21545), (69, 21557), (75, 21620),

Gene: Lonelysoil_31 Start: 21358, Stop: 21888, Start Num: 15

Candidate Starts for Lonelysoil_31:

(10, 21127), (Start: 15 @21358 has 39 MA's), (28, 21499), (33, 21550), (37, 21595), (40, 21622), (43, 21646), (46, 21658), (57, 21736), (65, 21772), (67, 21790), (69, 21802), (75, 21865),

Gene: Marcie_36 Start: 21138, Stop: 21635, Start Num: 15

Candidate Starts for Marcie_36:

(10, 20910), (11, 20925), (Start: 13 @21123 has 1 MA's), (Start: 15 @21138 has 39 MA's), (33, 21303), (40, 21375), (42, 21393), (45, 21408), (55, 21477), (57, 21489), (58, 21495), (71, 21582), (72, 21591),

Gene: Mashley_30 Start: 21630, Stop: 22160, Start Num: 15

Candidate Starts for Mashley_30:

(Start: 15 @21630 has 39 MA's), (33, 21822), (40, 21894), (43, 21918), (57, 22008), (65, 22044), (67, 22062), (69, 22074),

Gene: MorillMayhem_31 Start: 21628, Stop: 22158, Start Num: 15

Candidate Starts for MorillMayhem_31:

(10, 21397), (Start: 15 @21628 has 39 MA's), (28, 21769), (33, 21820), (37, 21865), (40, 21892), (43, 21916), (46, 21928), (57, 22006), (65, 22042), (67, 22060), (69, 22072), (75, 22135),

Gene: Namago_32 Start: 21197, Stop: 21727, Start Num: 15

Candidate Starts for Namago_32:

(10, 20966), (Start: 15 @21197 has 39 MA's), (33, 21389), (40, 21461), (43, 21485), (57, 21575), (65, 21611), (67, 21629), (69, 21641),

Gene: Nike_32 Start: 22149, Stop: 22679, Start Num: 15

Candidate Starts for Nike_32:

(Start: 15 @22149 has 39 MA's), (33, 22341), (40, 22413), (57, 22527), (65, 22563), (67, 22581), (69, 22593),

Gene: OneinaGillian_31 Start: 20129, Stop: 20626, Start Num: 15

Candidate Starts for OneinaGillian_31:

(10, 19901), (11, 19916), (Start: 13 @20114 has 1 MA's), (Start: 15 @20129 has 39 MA's), (23, 20201), (40, 20366), (42, 20384), (55, 20468), (57, 20480), (58, 20486), (71, 20573), (72, 20582),

Gene: Pepe25_30 Start: 20353, Stop: 20844, Start Num: 15

Candidate Starts for Pepe25_30:

(2, 19546), (4, 19693), (5, 19723), (7, 19855), (9, 20005), (10, 20128), (11, 20143), (Start: 15 @20353 has 39 MA's), (20, 20383), (40, 20584), (41, 20596), (42, 20602), (45, 20617), (55, 20686), (57, 20698), (71, 20791), (72, 20800),

Gene: Phabia_32 Start: 21531, Stop: 22061, Start Num: 15

Candidate Starts for Phabia_32:

(10, 21300), (Start: 15 @21531 has 39 MA's), (28, 21672), (33, 21723), (37, 21768), (40, 21795), (43, 21819), (46, 21831), (57, 21909), (65, 21945), (67, 21963), (69, 21975), (75, 22038),

Gene: Phinky_38 Start: 22707, Stop: 23231, Start Num: 15

Candidate Starts for Phinky_38:

(10, 22479), (Start: 15 @22707 has 39 MA's), (25, 22821), (26, 22833), (30, 22860), (37, 22944), (39, 22965), (40, 22971), (57, 23085), (59, 23094), (63, 23106), (67, 23139), (69, 23151),

Gene: Quammi_30 Start: 21103, Stop: 21633, Start Num: 15

Candidate Starts for Quammi_30:

(10, 20872), (Start: 15 @21103 has 39 MA's), (33, 21295), (40, 21367), (43, 21391), (57, 21481), (65, 21517), (67, 21535), (69, 21547),

Gene: RobinRose_33 Start: 20618, Stop: 21130, Start Num: 13

Candidate Starts for RobinRose_33:

(10, 20405), (11, 20420), (Start: 13 @20618 has 1 MA's), (Start: 15 @20633 has 39 MA's), (23, 20705), (33, 20798), (40, 20870), (42, 20888), (55, 20972), (57, 20984), (58, 20990), (71, 21077), (72, 21086),

Gene: RomansRevenge_23 Start: 18318, Stop: 18812, Start Num: 15

Candidate Starts for RomansRevenge_23:

(Start: 13 @18303 has 1 MA's), (Start: 15 @18318 has 39 MA's), (19, 18339), (22, 18372), (32, 18468), (33, 18477), (40, 18552), (42, 18570), (43, 18576), (47, 18594), (48, 18597), (49, 18612), (50, 18621), (52, 18627), (59, 18678), (61, 18687), (66, 18720), (72, 18771),

Gene: Romm_33 Start: 20633, Stop: 21130, Start Num: 15

Candidate Starts for Romm_33:

(10, 20405), (11, 20420), (Start: 13 @20618 has 1 MA's), (Start: 15 @20633 has 39 MA's), (23, 20705), (33, 20798), (40, 20870), (42, 20888), (55, 20972), (57, 20984), (58, 20990), (71, 21077), (72, 21086),

Gene: Rowlf_28 Start: 21278, Stop: 21808, Start Num: 15

Candidate Starts for Rowlf_28:

(10, 21047), (Start: 15 @21278 has 39 MA's), (33, 21470), (40, 21542), (43, 21566), (57, 21656), (65, 21692), (67, 21710), (69, 21722),

Gene: RubyRalph_34 Start: 21173, Stop: 21700, Start Num: 15

Candidate Starts for RubyRalph_34:

(3, 20483), (6, 20630), (8, 20810), (10, 20945), (11, 20963), (Start: 15 @21173 has 39 MA's), (25, 21281), (27, 21299), (40, 21440), (43, 21464), (57, 21554), (59, 21563), (72, 21656),

Gene: Rudy_30 Start: 21136, Stop: 21666, Start Num: 15

Candidate Starts for Rudy_30:

(10, 20905), (Start: 15 @21136 has 39 MA's), (33, 21328), (40, 21400), (43, 21424), (57, 21514), (65, 21550), (67, 21568), (69, 21580),

Gene: SadLad_36 Start: 22116, Stop: 22643, Start Num: 15

Candidate Starts for SadLad_36:

(14, 22110), (Start: 15 @22116 has 39 MA's), (25, 22224), (27, 22242), (40, 22383), (43, 22407), (57, 22497), (59, 22506), (72, 22599),

Gene: SallyK_33 Start: 22211, Stop: 22741, Start Num: 15

Candidate Starts for SallyK_33:

(10, 21980), (Start: 15 @22211 has 39 MA's), (28, 22352), (33, 22403), (37, 22448), (40, 22475), (43, 22499), (46, 22511), (57, 22589), (65, 22625), (67, 22643), (69, 22655), (75, 22718),

Gene: SilentRX_27 Start: 20093, Stop: 20590, Start Num: 15

Candidate Starts for SilentRX_27:

(Start: 15 @20093 has 39 MA's), (33, 20255), (35, 20282), (38, 20309), (41, 20342), (43, 20354), (44, 20357), (47, 20372), (51, 20399), (53, 20420), (56, 20435), (59, 20453), (61, 20462), (72, 20540),

Gene: Sillytadpoles_33 Start: 21101, Stop: 21631, Start Num: 15

Candidate Starts for Sillytadpoles_33:

(10, 20870), (Start: 15 @21101 has 39 MA's), (28, 21242), (33, 21293), (37, 21338), (40, 21365), (43, 21389), (46, 21401), (57, 21479), (65, 21515), (67, 21533), (69, 21545), (75, 21608),

Gene: Squash_34 Start: 22160, Stop: 22690, Start Num: 15

Candidate Starts for Squash_34:

(Start: 15 @22160 has 39 MA's), (33, 22352), (40, 22424), (43, 22448), (57, 22538), (65, 22574), (67, 22592), (69, 22604),

Gene: Statler_34 Start: 22020, Stop: 22550, Start Num: 15

Candidate Starts for Statler_34:

(10, 21789), (Start: 15 @22020 has 39 MA's), (28, 22161), (33, 22212), (37, 22257), (40, 22284), (43, 22308), (46, 22320), (57, 22398), (65, 22434), (69, 22464), (75, 22527),

Gene: StrawberryJamm_34 Start: 21340, Stop: 21870, Start Num: 15

Candidate Starts for StrawberryJamm_34:

(10, 21109), (Start: 15 @21340 has 39 MA's), (33, 21532), (40, 21604), (43, 21628), (57, 21718), (65, 21754), (67, 21772), (69, 21784),

Gene: Sunfish_40 Start: 22467, Stop: 23003, Start Num: 15

Candidate Starts for Sunfish_40:

(Start: 15 @22467 has 39 MA's), (18, 22497), (21, 22512), (33, 22641), (34, 22650), (40, 22722), (62, 22851), (64, 22860),

Gene: Teehee_33 Start: 22337, Stop: 22867, Start Num: 15

Candidate Starts for Teehee_33:

(10, 22106), (Start: 15 @22337 has 39 MA's), (28, 22478), (33, 22529), (37, 22574), (40, 22601), (43, 22625), (46, 22637), (57, 22715), (65, 22751), (67, 22769), (69, 22781), (75, 22844),

Gene: Tempo_31 Start: 20509, Stop: 21006, Start Num: 15

Candidate Starts for Tempo_31:

(5, 19876), (7, 20008), (10, 20281), (11, 20296), (Start: 13 @20494 has 1 MA's), (Start: 15 @20509 has 39 MA's), (23, 20581), (33, 20674), (40, 20746), (42, 20764), (55, 20848), (57, 20860), (58, 20866), (71, 20953), (72, 20962),

Gene: Tissue_32 Start: 21857, Stop: 22384, Start Num: 15

Candidate Starts for Tissue_32:

(10, 21626), (Start: 15 @21857 has 39 MA's), (33, 22046), (37, 22091), (40, 22118), (43, 22142), (57, 22232), (65, 22268), (67, 22286), (69, 22298), (75, 22361),

Gene: Viceroy_31 Start: 21103, Stop: 21633, Start Num: 15

Candidate Starts for Viceroy_31:

(10, 20872), (Start: 15 @21103 has 39 MA's), (33, 21295), (40, 21367), (43, 21391), (57, 21481), (65, 21517), (67, 21535), (69, 21547),

Gene: Wayne3_33 Start: 22100, Stop: 22630, Start Num: 15

Candidate Starts for Wayne3_33:

(10, 21869), (Start: 15 @22100 has 39 MA's), (28, 22241), (33, 22292), (37, 22337), (40, 22364), (43, 22388), (46, 22400), (57, 22478), (65, 22514), (67, 22532), (69, 22544), (75, 22607),

Gene: Wheelie_31 Start: 21418, Stop: 21948, Start Num: 15

Candidate Starts for Wheelie_31:

(10, 21187), (Start: 15 @21418 has 39 MA's), (28, 21559), (33, 21610), (37, 21655), (40, 21682), (43, 21706), (46, 21718), (57, 21796), (65, 21832), (67, 21850), (69, 21862), (75, 21925),

Gene: Wilca_31 Start: 20336, Stop: 20827, Start Num: 15

Candidate Starts for Wilca_31:

(1, 18518), (2, 19529), (4, 19676), (5, 19706), (7, 19838), (9, 19988), (10, 20111), (11, 20126), (Start: 15 @20336 has 39 MA's), (20, 20366), (40, 20567), (41, 20579), (42, 20585), (45, 20600), (55, 20669), (57, 20681), (71, 20774), (72, 20783),

Gene: Zagie_32 Start: 21541, Stop: 22071, Start Num: 15

Candidate Starts for Zagie_32:

(Start: 15 @21541 has 39 MA's), (33, 21733), (40, 21805), (43, 21829), (57, 21919), (65, 21955), (67, 21973), (69, 21985),

Gene: Zhafia_35 Start: 21896, Stop: 22426, Start Num: 15

Candidate Starts for Zhafia_35:

(10, 21665), (Start: 15 @21896 has 39 MA's), (28, 22037), (33, 22088), (37, 22133), (40, 22160), (43, 22184), (46, 22196), (57, 22274), (65, 22310), (67, 22328), (69, 22340), (75, 22403),

Gene: phiAsp2_20 Start: 13014, Stop: 13562, Start Num: 17

Candidate Starts for phiAsp2_20:

(12, 12978), (17, 13014), (18, 13029), (19, 13035), (24, 13086), (27, 13131), (29, 13143), (36, 13218), (53, 13356), (54, 13368), (55, 13371), (58, 13389), (68, 13443), (70, 13473), (73, 13500),