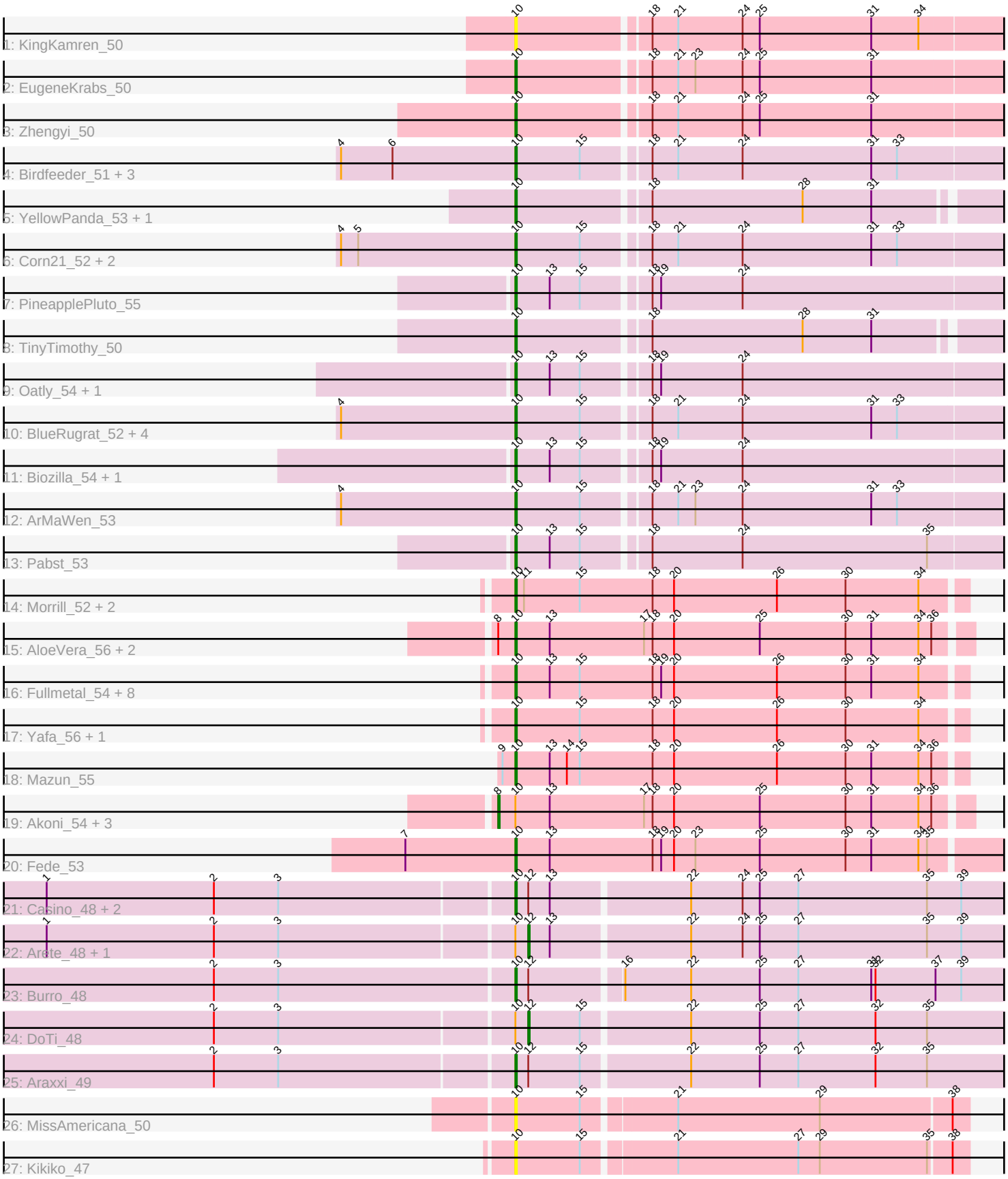
# Pham 2023


1: KingKamren_50
2: EugeneKrabs_50
3: Zhengyi_50
4: Birdfeeder_51 + 3
5: YellowPanda_53 + 1
6: Corn21_52 + 2
7: PineapplePluto_55
8: TinyTimothy_50
9: Oatly_54 + 1
10: BlueRugrat_52 + 4
11: Biozilla_54 + 1
12: ArMaWen_53
13: Pabst_53
14: Morrill_52 + 2
15: AloeVera_56 + 2
16: Fullmetal_54 + 8
17: Yafa_56 + 1
18: Mazun_55
19: Akoni_54 + 3
20: Fede_53
21: Casino_48 + 2
22: Arete_48 + 1
23: Burro_48
24: DoTi_48
25: Araxxi_49
26: MissAmericana_50
27: Kikiko_47

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 2023 Report

This analysis was run 04/28/24 on database version 559.

Pham number 2023 has 58 members, 15 are drafts.

Phages represented in each track:
• Track 1 : KingKamren_50
• Track 2 : EugeneKrabs_50
• Track 3 : Zhengyi_50
• Track 4 : Birdfeeder_51, Alex44_54, Phogo_53, LilyLou_55
• Track 5 : YellowPanda_53, Wesak_51
• Track 6 : Corn21_52, Stormbreaker_53, Dashyla_55
• Track 7 : PineapplePluto_55
• Track 8 : TinyTimothy_50
• Track 9 : Oatly_54, CrunchyBoi_55
• Track 10 : BlueRugrat_52, LesNorah_53, Unphazed_53, Xitlalli_51, DumpQuist_53
• Track 11 : Biozilla_54, HitchHiker_55
• Track 12 : ArMaWen_53
• Track 13 : Pabst_53
• Track 14 : Morrill_52, TrippleS_58, ThirteenKH_56
• Track 15 : AloeVera_56, Waterlily_58, Barroma_57
• Track 16 : Fullmetal_54, Pharky_54, Phedro_54, StagePhright_54, Moleficent_55, Astartes_55, RicoCaldo_54, Phractured_54, PhriedRice_55
• Track 17 : Yafa_56, Atraxi_52
• Track 18 : Mazun_55
• Track 19 : Akoni_54, JordanFarm_56, Truong_54, Ashton_55
• Track 20 : Fede_53
• Track 21 : Casino_48, Hannabella_48, Scruffy_48
• Track 22 : Arete_48, Gshelby23_46
• Track 23 : Burro_48
• Track 24 : DoTi_48
• Track 25 : Araxxi_49
• Track 26 : MissAmericana_50
• Track 27 : Kikiko_47

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

The start number called the most often in the published annotations is 10, it was called in 36 of the 43 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Alex44_54, AloeVera_56, ArMaWen_53, Araxxi_49, Astartes_55, Atraxi_52, Barroma_57, Biozilla_54, Birdfeeder_51, BlueRugrat_52, Burro_48, Casino_48, Corn21_52, CrunchyBoi_55, Dashyla_55, DumpQuist_53, EugeneKrabs_50, Fede_53, Fullmetal_54, Hannabella_48, HitchHiker_55, Kikiko_47, KingKamren_50, LesNorah_53, LilyLou_55, Mazun_55, MissAmericana_50, Moleficent_55, Morrill_52, Oatly_54, Pabst_53, Pharky_54, Phedro_54, Phogo_53, Phractured_54, PhriedRice_55, PineapplePluto_55, RicoCaldo_54, Scruffy_48, StagePhright_54, Stormbreaker_53, ThirteenKH_56, TinyTimothy_50, TrippleS_58, Unphazed_53, Waterlily_58, Wesak_51, Xitlalli_51, Yafa_56, YellowPanda_53, Zhengyi_50,

Genes that have the "Most Annotated" start but do not call it:
• Akoni_54, Arete_48, Ashton_55, DoTi_48, Gshelby23_46, JordanFarm_56, Truong_54,

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

**Summary by start number:**

Start 8:
• Found in 7 of 58 ( 12.1% ) of genes in pham
• Manual Annotations of this start: 4 of 43
• Called 57.1% of time when present
• Phage (with cluster) where this start called: Akoni_54 (EK2), Ashton_55 (EK2), JordanFarm_56 (EK2), Truong_54 (EK2),

Start 10:
• Found in 58 of 58 ( 100.0% ) of genes in pham
• Manual Annotations of this start: 36 of 43
• Called 87.9% of time when present
• Phage (with cluster) where this start called: Alex44_54 (EK1), AloeVera_56 (EK2), ArMaWen_53 (EK1), Araxxi_49 (EM1), Astartes_55 (EK2), Atraxi_52 (EK2), Barroma_57 (EK2), Biozilla_54 (EK1), Birdfeeder_51 (EK1), BlueRugrat_52 (EK1), Burro_48 (EM1), Casino_48 (EM1), Corn21_52 (EK1), CrunchyBoi_55 (EK1), Dashyla_55 (EK1), DumpQuist_53 (EK1), EugeneKrabs_50 (EK), Fede_53 (EK2), Fullmetal_54 (EK2), Hannabella_48 (EM1), HitchHiker_55 (EK1), Kikiko_47 (EM2), KingKamren_50 (EK), LesNorah_53 (EK1), LilyLou_55 (EK1), Mazun_55 (EK2), MissAmericana_50 (EM2), Moleficent_55 (EK2), Morrill_52 (EK2), Oatly_54 (EK1), Pabst_53 (EK1), Pharky_54 (EK2), Phedro_54 (EK2), Phogo_53 (EK1), Phractured_54 (EK2), PhriedRice_55 (EK2), PineapplePluto_55 (EK1), RicoCaldo_54 (EK2), Scruffy_48 (EM1), StagePhright_54 (EK2), Stormbreaker_53 (EK1), ThirteenKH_56 (EK2), TinyTimothy_50 (EK1), TrippleS_58 (EK2), Unphazed_53 (EK1), Waterlily_58 (EK2), Wesak_51 (EK1), Xitlalli_51 (EK1), Yafa_56 (EK2), YellowPanda_53 (EK1), Zhengyi_50 (EK),

Start 12:
• Found in 8 of 58 ( 13.8% ) of genes in pham
• Manual Annotations of this start: 3 of 43
• Called 37.5% of time when present
• Phage (with cluster) where this start called: Arete_48 (EM1), DoTi_48 (EM1), Gshelby23_46 (EM1),

**Summary by clusters:**

There are 5 clusters represented in this pham: EK, EM1, EK2, EK1, EM2,

Info for manual annotations of cluster EK:
•Start number 10 was manually annotated 2 times for cluster EK.

Info for manual annotations of cluster EK1:
•Start number 10 was manually annotated 19 times for cluster EK1.

Info for manual annotations of cluster EK2:
•Start number 8 was manually annotated 4 times for cluster EK2.
•Start number 10 was manually annotated 12 times for cluster EK2.

Info for manual annotations of cluster EM1:
•Start number 10 was manually annotated 3 times for cluster EM1.
•Start number 12 was manually annotated 3 times for cluster EM1.

***Gene Information:***

Gene: Akoni_54 Start: 53286, Stop: 53612, Start Num: 8
Candidate Starts for Akoni_54:
(Start: 8 @53286 has 4 MA's), (Start: 10 @53298 has 36 MA's), (13, 53322), (17, 53388), (18, 53394), (20, 53409), (25, 53469), (30, 53529), (31, 53547), (34, 53580), (36, 53589),

Gene: Alex44_54 Start: 53593, Stop: 53952, Start Num: 10
Candidate Starts for Alex44_54:
(4, 53473), (6, 53509), (Start: 10 @53593 has 36 MA's), (15, 53638), (18, 53680), (21, 53698), (24, 53743), (31, 53833), (33, 53851),

Gene: AloeVera_56 Start: 53512, Stop: 53826, Start Num: 10
Candidate Starts for AloeVera_56:
(Start: 8 @53500 has 4 MA's), (Start: 10 @53512 has 36 MA's), (13, 53536), (17, 53602), (18, 53608), (20, 53623), (25, 53683), (30, 53743), (31, 53761), (34, 53794), (36, 53803),

Gene: ArMaWen_53 Start: 53136, Stop: 53495, Start Num: 10
Candidate Starts for ArMaWen_53:
(4, 53016), (Start: 10 @53136 has 36 MA's), (15, 53181), (18, 53223), (21, 53241), (23, 53253), (24, 53286), (31, 53376), (33, 53394),

Gene: Araxxi_49 Start: 53250, Stop: 53597, Start Num: 10
Candidate Starts for Araxxi_49:
(2, 53046), (3, 53091), (Start: 10 @53250 has 36 MA's), (Start: 12 @53259 has 3 MA's), (15, 53295), (22, 53367), (25, 53415), (27, 53442), (32, 53496), (35, 53532),

Gene: Arete_48 Start: 52970, Stop: 53308, Start Num: 12
Candidate Starts for Arete_48:
(1, 52640), (2, 52757), (3, 52802), (Start: 10 @52961 has 36 MA's), (Start: 12 @52970 has 3 MA's), (13, 52985), (22, 53078), (24, 53114), (25, 53126), (27, 53153), (35, 53243), (39, 53267),

Gene: Ashton_55 Start: 53498, Stop: 53824, Start Num: 8
Candidate Starts for Ashton_55:
(Start: 8 @53498 has 4 MA's), (Start: 10 @53510 has 36 MA's), (13, 53534), (17, 53600), (18, 53606), (20, 53621), (25, 53681), (30, 53741), (31, 53759), (34, 53792), (36, 53801),

Gene: Astartes_55 Start: 53101, Stop: 53412, Start Num: 10
Candidate Starts for Astartes_55:
(Start: 10 @53101 has 36 MA's), (13, 53125), (15, 53146), (18, 53197), (19, 53203), (20, 53212), (26, 53284), (30, 53332), (31, 53350), (34, 53383),

Gene: Atraxi_52 Start: 52901, Stop: 53212, Start Num: 10
Candidate Starts for Atraxi_52:
(Start: 10 @52901 has 36 MA's), (15, 52946), (18, 52997), (20, 53012), (26, 53084), (30, 53132), (34, 53183),

Gene: Barroma_57 Start: 53300, Stop: 53614, Start Num: 10
Candidate Starts for Barroma_57:
(Start: 8 @53288 has 4 MA's), (Start: 10 @53300 has 36 MA's), (13, 53324), (17, 53390), (18, 53396), (20, 53411), (25, 53471), (30, 53531), (31, 53549), (34, 53582), (36, 53591),

Gene: Biozilla_54 Start: 52771, Stop: 53112, Start Num: 10
Candidate Starts for Biozilla_54:
(Start: 10 @52771 has 36 MA's), (13, 52795), (15, 52816), (18, 52858), (19, 52864), (24, 52921),

Gene: Birdfeeder_51 Start: 53094, Stop: 53453, Start Num: 10
Candidate Starts for Birdfeeder_51:
(4, 52974), (6, 53010), (Start: 10 @53094 has 36 MA's), (15, 53139), (18, 53181), (21, 53199), (24, 53244), (31, 53334), (33, 53352),

Gene: BlueRugrat_52 Start: 53321, Stop: 53680, Start Num: 10
Candidate Starts for BlueRugrat_52:
(4, 53201), (Start: 10 @53321 has 36 MA's), (15, 53366), (18, 53408), (21, 53426), (24, 53471), (31, 53561), (33, 53579),

Gene: Burro_48 Start: 53742, Stop: 54086, Start Num: 10
Candidate Starts for Burro_48:
(2, 53535), (3, 53580), (Start: 10 @53742 has 36 MA's), (Start: 12 @53751 has 3 MA's), (16, 53811), (22, 53856), (25, 53904), (27, 53931), (31, 53982), (32, 53985), (37, 54027), (39, 54045),

Gene: Casino_48 Start: 52936, Stop: 53283, Start Num: 10
Candidate Starts for Casino_48:
(1, 52615), (2, 52732), (3, 52777), (Start: 10 @52936 has 36 MA's), (Start: 12 @52945 has 3 MA's), (13, 52960), (22, 53053), (24, 53089), (25, 53101), (27, 53128), (35, 53218), (39, 53242),

Gene: Corn21_52 Start: 53402, Stop: 53761, Start Num: 10
Candidate Starts for Corn21_52:
(4, 53282), (5, 53294), (Start: 10 @53402 has 36 MA's), (15, 53447), (18, 53489), (21, 53507), (24, 53552), (31, 53642), (33, 53660),

Gene: CrunchyBoi_55 Start: 52626, Stop: 52967, Start Num: 10
Candidate Starts for CrunchyBoi_55:
(Start: 10 @52626 has 36 MA's), (13, 52650), (15, 52671), (18, 52713), (19, 52719), (24, 52776),

Gene: Dashyla_55 Start: 53270, Stop: 53629, Start Num: 10
Candidate Starts for Dashyla_55:
(4, 53150), (5, 53162), (Start: 10 @53270 has 36 MA's), (15, 53315), (18, 53357), (21, 53375), (24, 53420), (31, 53510), (33, 53528),

Gene: DoTi_48 Start: 53361, Stop: 53699, Start Num: 12
Candidate Starts for DoTi_48:
(2, 53148), (3, 53193), (Start: 10 @53352 has 36 MA's), (Start: 12 @53361 has 3 MA's), (15, 53397), (22, 53469), (25, 53517), (27, 53544), (32, 53598), (35, 53634),

Gene: DumpQuist_53 Start: 53121, Stop: 53480, Start Num: 10
Candidate Starts for DumpQuist_53:
(4, 53001), (Start: 10 @53121 has 36 MA's), (15, 53166), (18, 53208), (21, 53226), (24, 53271), (31, 53361), (33, 53379),

Gene: EugeneKrabs_50 Start: 53821, Stop: 54180, Start Num: 10
Candidate Starts for EugeneKrabs_50:
(Start: 10 @53821 has 36 MA's), (18, 53908), (21, 53926), (23, 53938), (24, 53971), (25, 53983), (31, 54061),

Gene: Fede_53 Start: 53860, Stop: 54219, Start Num: 10
Candidate Starts for Fede_53:
(7, 53785), (Start: 10 @53860 has 36 MA's), (13, 53884), (18, 53956), (19, 53962), (20, 53971), (23, 53986), (25, 54031), (30, 54091), (31, 54109), (34, 54142), (35, 54148),

Gene: Fullmetal_54 Start: 53435, Stop: 53746, Start Num: 10
Candidate Starts for Fullmetal_54:
(Start: 10 @53435 has 36 MA's), (13, 53459), (15, 53480), (18, 53531), (19, 53537), (20, 53546), (26, 53618), (30, 53666), (31, 53684), (34, 53717),

Gene: Gshelby23_46 Start: 52881, Stop: 53219, Start Num: 12
Candidate Starts for Gshelby23_46:
(1, 52551), (2, 52668), (3, 52713), (Start: 10 @52872 has 36 MA's), (Start: 12 @52881 has 3 MA's), (13, 52896), (22, 52989), (24, 53025), (25, 53037), (27, 53064), (35, 53154), (39, 53178),

Gene: Hannabella_48 Start: 52912, Stop: 53259, Start Num: 10
Candidate Starts for Hannabella_48:
(1, 52591), (2, 52708), (3, 52753), (Start: 10 @52912 has 36 MA's), (Start: 12 @52921 has 3 MA's), (13, 52936), (22, 53029), (24, 53065), (25, 53077), (27, 53104), (35, 53194), (39, 53218),

Gene: HitchHiker_55 Start: 52771, Stop: 53112, Start Num: 10
Candidate Starts for HitchHiker_55:
(Start: 10 @52771 has 36 MA's), (13, 52795), (15, 52816), (18, 52858), (19, 52864), (24, 52921),

Gene: JordanFarm_56 Start: 53499, Stop: 53825, Start Num: 8
Candidate Starts for JordanFarm_56:
(Start: 8 @53499 has 4 MA's), (Start: 10 @53511 has 36 MA's), (13, 53535), (17, 53601), (18, 53607), (20, 53622), (25, 53682), (30, 53742), (31, 53760), (34, 53793), (36, 53802),

Gene: Kikiko_47 Start: 53184, Stop: 53489, Start Num: 10
Candidate Starts for Kikiko_47:
(Start: 10 @53184 has 36 MA's), (15, 53229), (21, 53289), (27, 53373), (29, 53388), (35, 53463), (38, 53478),

Gene: KingKamren_50 Start: 53788, Stop: 54147, Start Num: 10
Candidate Starts for KingKamren_50:
(Start: 10 @53788 has 36 MA's), (18, 53875), (21, 53893), (24, 53938), (25, 53950), (31, 54028), (34, 54061),

Gene: LesNorah_53 Start: 53718, Stop: 54077, Start Num: 10
Candidate Starts for LesNorah_53:
(4, 53598), (Start: 10 @53718 has 36 MA's), (15, 53763), (18, 53805), (21, 53823), (24, 53868), (31, 53958), (33, 53976),

Gene: LilyLou_55 Start: 53585, Stop: 53944, Start Num: 10
Candidate Starts for LilyLou_55:
(4, 53465), (6, 53501), (Start: 10 @53585 has 36 MA's), (15, 53630), (18, 53672), (21, 53690), (24, 53735), (31, 53825), (33, 53843),

Gene: Mazun_55 Start: 53836, Stop: 54147, Start Num: 10
Candidate Starts for Mazun_55:
(9, 53827), (Start: 10 @53836 has 36 MA's), (13, 53860), (14, 53872), (15, 53881), (18, 53932), (20, 53947), (26, 54019), (30, 54067), (31, 54085), (34, 54118), (36, 54127),

Gene: MissAmericana_50 Start: 53011, Stop: 53316, Start Num: 10
Candidate Starts for MissAmericana_50:
(Start: 10 @53011 has 36 MA's), (15, 53056), (21, 53116), (29, 53215), (38, 53305),

Gene: Moleficent_55 Start: 53449, Stop: 53760, Start Num: 10
Candidate Starts for Moleficent_55:
(Start: 10 @53449 has 36 MA's), (13, 53473), (15, 53494), (18, 53545), (19, 53551), (20, 53560), (26, 53632), (30, 53680), (31, 53698), (34, 53731),

Gene: Morrill_52 Start: 52880, Stop: 53191, Start Num: 10
Candidate Starts for Morrill_52:
(Start: 10 @52880 has 36 MA's), (11, 52886), (15, 52925), (18, 52976), (20, 52991), (26, 53063), (30, 53111), (34, 53162),

Gene: Oatly_54 Start: 52331, Stop: 52672, Start Num: 10
Candidate Starts for Oatly_54:
(Start: 10 @52331 has 36 MA's), (13, 52355), (15, 52376), (18, 52418), (19, 52424), (24, 52481),

Gene: Pabst_53 Start: 52711, Stop: 53061, Start Num: 10
Candidate Starts for Pabst_53:
(Start: 10 @52711 has 36 MA's), (13, 52735), (15, 52756), (18, 52798), (24, 52861), (35, 52990),

Gene: Pharky_54 Start: 53439, Stop: 53750, Start Num: 10
Candidate Starts for Pharky_54:
(Start: 10 @53439 has 36 MA's), (13, 53463), (15, 53484), (18, 53535), (19, 53541), (20, 53550), (26, 53622), (30, 53670), (31, 53688), (34, 53721),

Gene: Phedro_54 Start: 53439, Stop: 53750, Start Num: 10
Candidate Starts for Phedro_54:
(Start: 10 @53439 has 36 MA's), (13, 53463), (15, 53484), (18, 53535), (19, 53541), (20, 53550), (26, 53622), (30, 53670), (31, 53688), (34, 53721),

Gene: Phogo_53 Start: 53156, Stop: 53515, Start Num: 10
Candidate Starts for Phogo_53:
(4, 53036), (6, 53072), (Start: 10 @53156 has 36 MA's), (15, 53201), (18, 53243), (21, 53261), (24, 53306), (31, 53396), (33, 53414),

Gene: Phractured_54 Start: 53439, Stop: 53750, Start Num: 10
Candidate Starts for Phractured_54:
(Start: 10 @53439 has 36 MA's), (13, 53463), (15, 53484), (18, 53535), (19, 53541), (20, 53550), (26, 53622), (30, 53670), (31, 53688), (34, 53721),

Gene: PhriedRice_55 Start: 53543, Stop: 53854, Start Num: 10
Candidate Starts for PhriedRice_55:
(Start: 10 @53543 has 36 MA's), (13, 53567), (15, 53588), (18, 53639), (19, 53645), (20, 53654), (26, 53726), (30, 53774), (31, 53792), (34, 53825),

Gene: PineapplePluto_55 Start: 52694, Stop: 53035, Start Num: 10
Candidate Starts for PineapplePluto_55:
(Start: 10 @52694 has 36 MA's), (13, 52718), (15, 52739), (18, 52781), (19, 52787), (24, 52844),

Gene: RicoCaldo_54 Start: 53521, Stop: 53832, Start Num: 10
Candidate Starts for RicoCaldo_54:
(Start: 10 @53521 has 36 MA's), (13, 53545), (15, 53566), (18, 53617), (19, 53623), (20, 53632), (26, 53704), (30, 53752), (31, 53770), (34, 53803),

Gene: Scruffy_48 Start: 53197, Stop: 53544, Start Num: 10
Candidate Starts for Scruffy_48:
(1, 52876), (2, 52993), (3, 53038), (Start: 10 @53197 has 36 MA's), (Start: 12 @53206 has 3 MA's), (13, 53221), (22, 53314), (24, 53350), (25, 53362), (27, 53389), (35, 53479), (39, 53503),

Gene: StagePhright_54 Start: 53439, Stop: 53750, Start Num: 10
Candidate Starts for StagePhright_54:
(Start: 10 @53439 has 36 MA's), (13, 53463), (15, 53484), (18, 53535), (19, 53541), (20, 53550), (26, 53622), (30, 53670), (31, 53688), (34, 53721),

Gene: Stormbreaker_53 Start: 53247, Stop: 53606, Start Num: 10
Candidate Starts for Stormbreaker_53:
(4, 53127), (5, 53139), (Start: 10 @53247 has 36 MA's), (15, 53292), (18, 53334), (21, 53352), (24, 53397), (31, 53487), (33, 53505),

Gene: ThirteenKH_56 Start: 52889, Stop: 53200, Start Num: 10
Candidate Starts for ThirteenKH_56:
(Start: 10 @52889 has 36 MA's), (11, 52895), (15, 52934), (18, 52985), (20, 53000), (26, 53072), (30, 53120), (34, 53171),

Gene: TinyTimothy_50 Start: 52757, Stop: 53092, Start Num: 10
Candidate Starts for TinyTimothy_50:
(Start: 10 @52757 has 36 MA's), (18, 52844), (28, 52949), (31, 52997),

Gene: TrippleS_58 Start: 53038, Stop: 53349, Start Num: 10
Candidate Starts for TrippleS_58:
(Start: 10 @53038 has 36 MA's), (11, 53044), (15, 53083), (18, 53134), (20, 53149), (26, 53221), (30, 53269), (34, 53320),

Gene: Truong_54 Start: 53288, Stop: 53614, Start Num: 8
Candidate Starts for Truong_54:
(Start: 8 @53288 has 4 MA's), (Start: 10 @53300 has 36 MA's), (13, 53324), (17, 53390), (18, 53396), (20, 53411), (25, 53471), (30, 53531), (31, 53549), (34, 53582), (36, 53591),

Gene: Unphazed_53 Start: 53116, Stop: 53475, Start Num: 10
Candidate Starts for Unphazed_53:
(4, 52996), (Start: 10 @53116 has 36 MA's), (15, 53161), (18, 53203), (21, 53221), (24, 53266), (31, 53356), (33, 53374),

Gene: Waterlily_58 Start: 53551, Stop: 53865, Start Num: 10
Candidate Starts for Waterlily_58:
(Start: 8 @53539 has 4 MA's), (Start: 10 @53551 has 36 MA's), (13, 53575), (17, 53641), (18, 53647), (20, 53662), (25, 53722), (30, 53782), (31, 53800), (34, 53833), (36, 53842),

Gene: Wesak_51 Start: 52614, Stop: 52949, Start Num: 10
Candidate Starts for Wesak_51:
(Start: 10 @52614 has 36 MA's), (18, 52701), (28, 52806), (31, 52854),

Gene: Xitlalli_51 Start: 53126, Stop: 53485, Start Num: 10
Candidate Starts for Xitlalli_51:
(4, 53006), (Start: 10 @53126 has 36 MA's), (15, 53171), (18, 53213), (21, 53231), (24, 53276), (31, 53366), (33, 53384),

Gene: Yafa_56 Start: 52793, Stop: 53104, Start Num: 10
Candidate Starts for Yafa_56:
(Start: 10 @52793 has 36 MA's), (15, 52838), (18, 52889), (20, 52904), (26, 52976), (30, 53024), (34, 53075),

Gene: YellowPanda_53 Start: 52483, Stop: 52818, Start Num: 10
Candidate Starts for YellowPanda_53:
(Start: 10 @52483 has 36 MA's), (18, 52570), (28, 52675), (31, 52723),

Gene: Zhengyi_50 Start: 53870, Stop: 54229, Start Num: 10
Candidate Starts for Zhengyi_50:
(Start: 10 @53870 has 36 MA's), (18, 53957), (21, 53975), (24, 54020), (25, 54032), (31, 54110),