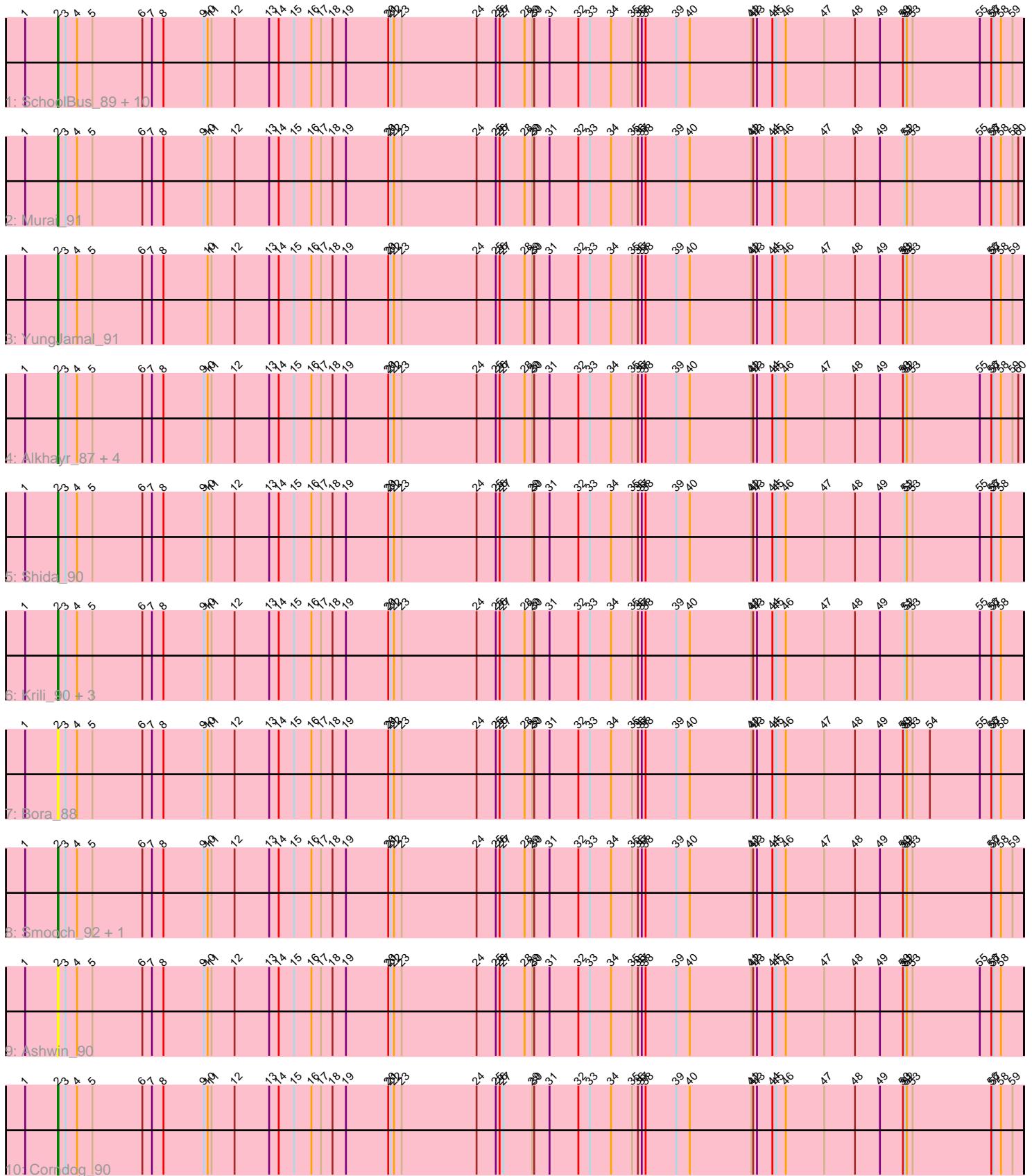


# Pham 3413



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 3413 Report

This analysis was run 04/05/24 on database version 557.

Pham number 3413 has 28 members, 6 are drafts.

Phages represented in each track:

- Track 1 : SchoolBus\_89, JangDynasty\_89, Dylan\_89, TelAviv\_87, Ryadel\_94, Catdawg\_90, Zakhe101\_89, Wildflower\_88, Blessica\_91, Idergollasper\_90, Familton\_91
- Track 2 : Murai\_91
- Track 3 : YungJamal\_91
- Track 4 : Alkhayr\_87, Winget\_91, FoulBall\_87, Schuy\_88, MadKillah\_92
- Track 5 : Shida\_90
- Track 6 : Krili\_90, Mori\_90, Vorpps\_90, NiebruSaylor\_90
- Track 7 : Bora\_88
- Track 8 : Smooch\_92, Firecracker\_94
- Track 9 : Ashwin\_90
- Track 10 : Corndog\_90

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

The start number called the most often in the published annotations is 2, it was called in 22 of the 22 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alkhayr\_87, Ashwin\_90, Blessica\_91, Bora\_88, Catdawg\_90, Corndog\_90, Dylan\_89, Familton\_91, Firecracker\_94, FoulBall\_87, Idergollasper\_90, JangDynasty\_89, Krili\_90, MadKillah\_92, Mori\_90, Murai\_91, NiebruSaylor\_90, Ryadel\_94, SchoolBus\_89, Schuy\_88, Shida\_90, Smooch\_92, TelAviv\_87, Vorpps\_90, Wildflower\_88, Winget\_91, YungJamal\_91, Zakhe101\_89,

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

- 

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

- 

### **Summary by start number:**

Start 2:

- Found in 28 of 28 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 22 of 22
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alkhayr\_87 (O), Ashwin\_90 (O), Blessica\_91 (O), Bora\_88 (O), Catdawg\_90 (O), Corndog\_90 (O), Dylan\_89 (O), Hamilton\_91 (O), Firecracker\_94 (O), FoulBall\_87 (O), Idergollasper\_90 (O), JangDynasty\_89 (O), Krili\_90 (O), MadKillah\_92 (O), Mori\_90 (O), Murai\_91 (O), NiebruSaylor\_90 (O), Ryadel\_94 (O), SchoolBus\_89 (O), Schuy\_88 (O), Shida\_90 (O), Smooch\_92 (O), TelAviv\_87 (O), Vorpps\_90 (O), Wildflower\_88 (O), Winget\_91 (O), YungJamal\_91 (O), Zakhe101\_89 (O),

### **Summary by clusters:**

There is one cluster represented in this pham: O

Info for manual annotations of cluster O:

- Start number 2 was manually annotated 22 times for cluster O.

### **Gene Information:**

Gene: Alkhayr\_87 Start: 56144, Stop: 54636, Start Num: 2

Candidate Starts for Alkhayr\_87:

(1, 56195), (Start: 2 @56144 has 22 MA's), (3, 56132), (4, 56114), (5, 56090), (6, 56012), (7, 55997), (8, 55979), (9, 55916), (10, 55910), (11, 55904), (12, 55868), (13, 55814), (14, 55799), (15, 55775), (16, 55748), (17, 55733), (18, 55715), (19, 55694), (20, 55628), (21, 55625), (22, 55619), (23, 55607), (24, 55490), (25, 55460), (26, 55454), (27, 55448), (28, 55415), (29, 55403), (30, 55400), (31, 55376), (32, 55331), (33, 55313), (34, 55280), (35, 55247), (36, 55238), (37, 55232), (38, 55226), (39, 55178), (40, 55157), (41, 55061), (42, 55058), (43, 55052), (44, 55028), (45, 55022), (46, 55007), (47, 54947), (48, 54899), (49, 54860), (50, 54824), (51, 54821), (52, 54818), (53, 54809), (55, 54704), (56, 54686), (57, 54683), (58, 54671), (59, 54653), (60, 54644),

Gene: Ashwin\_90 Start: 56665, Stop: 55157, Start Num: 2

Candidate Starts for Ashwin\_90:

(1, 56716), (Start: 2 @56665 has 22 MA's), (3, 56653), (4, 56635), (5, 56611), (6, 56533), (7, 56518), (8, 56500), (9, 56437), (10, 56431), (11, 56425), (12, 56389), (13, 56335), (14, 56320), (15, 56296), (16, 56269), (17, 56254), (18, 56236), (19, 56215), (20, 56149), (21, 56146), (22, 56140), (23, 56128), (24, 56011), (25, 55981), (26, 55975), (27, 55969), (28, 55936), (29, 55924), (30, 55921), (31, 55897), (32, 55852), (33, 55834), (34, 55801), (35, 55768), (36, 55759), (37, 55753), (38, 55747), (39, 55699), (40, 55678), (41, 55582), (42, 55579), (43, 55573), (44, 55549), (45, 55543), (46, 55528), (47, 55468), (48, 55420), (49, 55381), (50, 55345), (51, 55342), (52, 55339), (53, 55330), (55, 55225), (56, 55207), (57, 55204), (58, 55192),

Gene: Blessica\_91 Start: 56950, Stop: 55442, Start Num: 2

Candidate Starts for Blessica\_91:

(1, 57001), (Start: 2 @56950 has 22 MA's), (3, 56938), (4, 56920), (5, 56896), (6, 56818), (7, 56803), (8, 56785), (9, 56722), (10, 56716), (11, 56710), (12, 56674), (13, 56620), (14, 56605), (15, 56581), (16, 56554), (17, 56539), (18, 56521), (19, 56500), (20, 56434), (21, 56431), (22, 56425), (23, 56413), (24, 56296), (25, 56266), (26, 56260), (27, 56254), (28, 56221), (29, 56209), (30, 56206), (31, 56182), (32, 56137), (33, 56119), (34, 56086), (35, 56053), (36, 56044), (37, 56038), (38, 56032), (39, 55984), (40, 55963), (41, 55867), (42, 55864), (43, 55858), (44, 55834), (45, 55828), (46, 55813), (47, 55753), (48, 55705), (49, 55666), (50, 55630), (51, 55627), (52, 55624), (53, 55615), (55, 55510), (56, 55492),

(57, 55489), (58, 55477), (59, 55459),

Gene: Bora\_88 Start: 56473, Stop: 54965, Start Num: 2

Candidate Starts for Bora\_88:

(1, 56524), (Start: 2 @56473 has 22 MA's), (3, 56461), (4, 56443), (5, 56419), (6, 56341), (7, 56326), (8, 56308), (9, 56245), (10, 56239), (11, 56233), (12, 56197), (13, 56143), (14, 56128), (15, 56104), (16, 56077), (17, 56062), (18, 56044), (19, 56023), (20, 55957), (21, 55954), (22, 55948), (23, 55936), (24, 55819), (25, 55789), (26, 55783), (27, 55777), (28, 55744), (29, 55732), (30, 55729), (31, 55705), (32, 55660), (33, 55642), (34, 55609), (35, 55576), (36, 55567), (37, 55561), (38, 55555), (39, 55507), (40, 55486), (41, 55390), (42, 55387), (43, 55381), (44, 55357), (45, 55351), (46, 55336), (47, 55276), (48, 55228), (49, 55189), (50, 55153), (51, 55150), (52, 55147), (53, 55138), (54, 55111), (55, 55033), (56, 55015), (57, 55012), (58, 55000),

Gene: Catdawg\_90 Start: 56686, Stop: 55178, Start Num: 2

Candidate Starts for Catdawg\_90:

(1, 56737), (Start: 2 @56686 has 22 MA's), (3, 56674), (4, 56656), (5, 56632), (6, 56554), (7, 56539), (8, 56521), (9, 56458), (10, 56452), (11, 56446), (12, 56410), (13, 56356), (14, 56341), (15, 56317), (16, 56290), (17, 56275), (18, 56257), (19, 56236), (20, 56170), (21, 56167), (22, 56161), (23, 56149), (24, 56032), (25, 56002), (26, 55996), (27, 55990), (28, 55957), (29, 55945), (30, 55942), (31, 55918), (32, 55873), (33, 55855), (34, 55822), (35, 55789), (36, 55780), (37, 55774), (38, 55768), (39, 55720), (40, 55699), (41, 55603), (42, 55600), (43, 55594), (44, 55570), (45, 55564), (46, 55549), (47, 55489), (48, 55441), (49, 55402), (50, 55366), (51, 55363), (52, 55360), (53, 55351), (55, 55246), (56, 55228), (57, 55225), (58, 55213), (59, 55195),

Gene: Corndog\_90 Start: 55932, Stop: 54424, Start Num: 2

Candidate Starts for Corndog\_90:

(1, 55983), (Start: 2 @55932 has 22 MA's), (3, 55920), (4, 55902), (5, 55878), (6, 55800), (7, 55785), (8, 55767), (9, 55704), (10, 55698), (11, 55692), (12, 55656), (13, 55602), (14, 55587), (15, 55563), (16, 55536), (17, 55521), (18, 55503), (19, 55482), (20, 55416), (21, 55413), (22, 55407), (23, 55395), (24, 55278), (25, 55248), (26, 55242), (27, 55236), (29, 55191), (30, 55188), (31, 55164), (32, 55119), (33, 55101), (34, 55068), (35, 55035), (36, 55026), (37, 55020), (38, 55014), (39, 54966), (40, 54945), (41, 54849), (42, 54846), (43, 54840), (44, 54816), (45, 54810), (46, 54795), (47, 54735), (48, 54687), (49, 54648), (50, 54612), (51, 54609), (52, 54606), (53, 54597), (56, 54474), (57, 54471), (58, 54459), (59, 54441),

Gene: Dylan\_89 Start: 56398, Stop: 54890, Start Num: 2

Candidate Starts for Dylan\_89:

(1, 56449), (Start: 2 @56398 has 22 MA's), (3, 56386), (4, 56368), (5, 56344), (6, 56266), (7, 56251), (8, 56233), (9, 56170), (10, 56164), (11, 56158), (12, 56122), (13, 56068), (14, 56053), (15, 56029), (16, 56002), (17, 55987), (18, 55969), (19, 55948), (20, 55882), (21, 55879), (22, 55873), (23, 55861), (24, 55744), (25, 55714), (26, 55708), (27, 55702), (28, 55669), (29, 55657), (30, 55654), (31, 55630), (32, 55585), (33, 55567), (34, 55534), (35, 55501), (36, 55492), (37, 55486), (38, 55480), (39, 55432), (40, 55411), (41, 55315), (42, 55312), (43, 55306), (44, 55282), (45, 55276), (46, 55261), (47, 55201), (48, 55153), (49, 55114), (50, 55078), (51, 55075), (52, 55072), (53, 55063), (55, 54958), (56, 54940), (57, 54937), (58, 54925), (59, 54907),

Gene: Familton\_91 Start: 56643, Stop: 55135, Start Num: 2

Candidate Starts for Familton\_91:

(1, 56694), (Start: 2 @56643 has 22 MA's), (3, 56631), (4, 56613), (5, 56589), (6, 56511), (7, 56496), (8, 56478), (9, 56415), (10, 56409), (11, 56403), (12, 56367), (13, 56313), (14, 56298), (15, 56274), (16, 56247), (17, 56232), (18, 56214), (19, 56193), (20, 56127), (21, 56124), (22, 56118), (23, 56106), (24, 55989), (25, 55959), (26, 55953), (27, 55947), (28, 55914), (29, 55902), (30, 55899), (31, 55875), (32, 55830), (33, 55812), (34, 55779), (35, 55746), (36, 55737), (37, 55731), (38, 55725), (39, 55677),

(40, 55656), (41, 55560), (42, 55557), (43, 55551), (44, 55527), (45, 55521), (46, 55506), (47, 55446), (48, 55398), (49, 55359), (50, 55323), (51, 55320), (52, 55317), (53, 55308), (55, 55203), (56, 55185), (57, 55182), (58, 55170), (59, 55152),

Gene: Firecracker\_94 Start: 58036, Stop: 56528, Start Num: 2

Candidate Starts for Firecracker\_94:

(1, 58087), (Start: 2 @58036 has 22 MA's), (3, 58024), (4, 58006), (5, 57982), (6, 57904), (7, 57889), (8, 57871), (9, 57808), (10, 57802), (11, 57796), (12, 57760), (13, 57706), (14, 57691), (15, 57667), (16, 57640), (17, 57625), (18, 57607), (19, 57586), (20, 57520), (21, 57517), (22, 57511), (23, 57499), (24, 57382), (25, 57352), (26, 57346), (27, 57340), (28, 57307), (29, 57295), (30, 57292), (31, 57268), (32, 57223), (33, 57205), (34, 57172), (35, 57139), (36, 57130), (37, 57124), (38, 57118), (39, 57070), (40, 57049), (41, 56953), (42, 56950), (43, 56944), (44, 56920), (45, 56914), (46, 56899), (47, 56839), (48, 56791), (49, 56752), (50, 56716), (51, 56713), (52, 56710), (53, 56701), (56, 56578), (57, 56575), (58, 56563), (59, 56545),

Gene: FoulBall\_87 Start: 56427, Stop: 54919, Start Num: 2

Candidate Starts for FoulBall\_87:

(1, 56478), (Start: 2 @56427 has 22 MA's), (3, 56415), (4, 56397), (5, 56373), (6, 56295), (7, 56280), (8, 56262), (9, 56199), (10, 56193), (11, 56187), (12, 56151), (13, 56097), (14, 56082), (15, 56058), (16, 56031), (17, 56016), (18, 55998), (19, 55977), (20, 55911), (21, 55908), (22, 55902), (23, 55890), (24, 55773), (25, 55743), (26, 55737), (27, 55731), (28, 55698), (29, 55686), (30, 55683), (31, 55659), (32, 55614), (33, 55596), (34, 55563), (35, 55530), (36, 55521), (37, 55515), (38, 55509), (39, 55461), (40, 55440), (41, 55344), (42, 55341), (43, 55335), (44, 55311), (45, 55305), (46, 55290), (47, 55230), (48, 55182), (49, 55143), (50, 55107), (51, 55104), (52, 55101), (53, 55092), (55, 54987), (56, 54969), (57, 54966), (58, 54954), (59, 54936), (60, 54927),

Gene: Idergollasper\_90 Start: 56637, Stop: 55129, Start Num: 2

Candidate Starts for Idergollasper\_90:

(1, 56688), (Start: 2 @56637 has 22 MA's), (3, 56625), (4, 56607), (5, 56583), (6, 56505), (7, 56490), (8, 56472), (9, 56409), (10, 56403), (11, 56397), (12, 56361), (13, 56307), (14, 56292), (15, 56268), (16, 56241), (17, 56226), (18, 56208), (19, 56187), (20, 56121), (21, 56118), (22, 56112), (23, 56100), (24, 55983), (25, 55953), (26, 55947), (27, 55941), (28, 55908), (29, 55896), (30, 55893), (31, 55869), (32, 55824), (33, 55806), (34, 55773), (35, 55740), (36, 55731), (37, 55725), (38, 55719), (39, 55671), (40, 55650), (41, 55554), (42, 55551), (43, 55545), (44, 55521), (45, 55515), (46, 55500), (47, 55440), (48, 55392), (49, 55353), (50, 55317), (51, 55314), (52, 55311), (53, 55302), (55, 55197), (56, 55179), (57, 55176), (58, 55164), (59, 55146),

Gene: JangDynasty\_89 Start: 56446, Stop: 54938, Start Num: 2

Candidate Starts for JangDynasty\_89:

(1, 56497), (Start: 2 @56446 has 22 MA's), (3, 56434), (4, 56416), (5, 56392), (6, 56314), (7, 56299), (8, 56281), (9, 56218), (10, 56212), (11, 56206), (12, 56170), (13, 56116), (14, 56101), (15, 56077), (16, 56050), (17, 56035), (18, 56017), (19, 55996), (20, 55930), (21, 55927), (22, 55921), (23, 55909), (24, 55792), (25, 55762), (26, 55756), (27, 55750), (28, 55717), (29, 55705), (30, 55702), (31, 55678), (32, 55633), (33, 55615), (34, 55582), (35, 55549), (36, 55540), (37, 55534), (38, 55528), (39, 55480), (40, 55459), (41, 55363), (42, 55360), (43, 55354), (44, 55330), (45, 55324), (46, 55309), (47, 55249), (48, 55201), (49, 55162), (50, 55126), (51, 55123), (52, 55120), (53, 55111), (55, 55006), (56, 54988), (57, 54985), (58, 54973), (59, 54955),

Gene: Krili\_90 Start: 56195, Stop: 54687, Start Num: 2

Candidate Starts for Krili\_90:

(1, 56246), (Start: 2 @56195 has 22 MA's), (3, 56183), (4, 56165), (5, 56141), (6, 56063), (7, 56048), (8, 56030), (9, 55967), (10, 55961), (11, 55955), (12, 55919), (13, 55865), (14, 55850), (15, 55826), (16, 55799), (17, 55784), (18, 55766), (19, 55745), (20, 55679), (21, 55676), (22, 55670), (23, 55658),

(24, 55541), (25, 55511), (26, 55505), (27, 55499), (28, 55466), (29, 55454), (30, 55451), (31, 55427), (32, 55382), (33, 55364), (34, 55331), (35, 55298), (36, 55289), (37, 55283), (38, 55277), (39, 55229), (40, 55208), (41, 55112), (42, 55109), (43, 55103), (44, 55079), (45, 55073), (46, 55058), (47, 54998), (48, 54950), (49, 54911), (51, 54872), (52, 54869), (53, 54860), (55, 54755), (56, 54737), (57, 54734), (58, 54722),

Gene: MadKillah\_92 Start: 56464, Stop: 54956, Start Num: 2

Candidate Starts for MadKillah\_92:

(1, 56515), (Start: 2 @56464 has 22 MA's), (3, 56452), (4, 56434), (5, 56410), (6, 56332), (7, 56317), (8, 56299), (9, 56236), (10, 56230), (11, 56224), (12, 56188), (13, 56134), (14, 56119), (15, 56095), (16, 56068), (17, 56053), (18, 56035), (19, 56014), (20, 55948), (21, 55945), (22, 55939), (23, 55927), (24, 55810), (25, 55780), (26, 55774), (27, 55768), (28, 55735), (29, 55723), (30, 55720), (31, 55696), (32, 55651), (33, 55633), (34, 55600), (35, 55567), (36, 55558), (37, 55552), (38, 55546), (39, 55498), (40, 55477), (41, 55381), (42, 55378), (43, 55372), (44, 55348), (45, 55342), (46, 55327), (47, 55267), (48, 55219), (49, 55180), (50, 55144), (51, 55141), (52, 55138), (53, 55129), (55, 55024), (56, 55006), (57, 55003), (58, 54991), (59, 54973), (60, 54964),

Gene: Mori\_90 Start: 56723, Stop: 55215, Start Num: 2

Candidate Starts for Mori\_90:

(1, 56774), (Start: 2 @56723 has 22 MA's), (3, 56711), (4, 56693), (5, 56669), (6, 56591), (7, 56576), (8, 56558), (9, 56495), (10, 56489), (11, 56483), (12, 56447), (13, 56393), (14, 56378), (15, 56354), (16, 56327), (17, 56312), (18, 56294), (19, 56273), (20, 56207), (21, 56204), (22, 56198), (23, 56186), (24, 56069), (25, 56039), (26, 56033), (27, 56027), (28, 55994), (29, 55982), (30, 55979), (31, 55955), (32, 55910), (33, 55892), (34, 55859), (35, 55826), (36, 55817), (37, 55811), (38, 55805), (39, 55757), (40, 55736), (41, 55640), (42, 55637), (43, 55631), (44, 55607), (45, 55601), (46, 55586), (47, 55526), (48, 55478), (49, 55439), (51, 55400), (52, 55397), (53, 55388), (55, 55283), (56, 55265), (57, 55262), (58, 55250),

Gene: Murai\_91 Start: 56856, Stop: 55348, Start Num: 2

Candidate Starts for Murai\_91:

(1, 56907), (Start: 2 @56856 has 22 MA's), (3, 56844), (4, 56826), (5, 56802), (6, 56724), (7, 56709), (8, 56691), (9, 56628), (10, 56622), (11, 56616), (12, 56580), (13, 56526), (14, 56511), (15, 56487), (16, 56460), (17, 56445), (18, 56427), (19, 56406), (20, 56340), (21, 56337), (22, 56331), (23, 56319), (24, 56202), (25, 56172), (26, 56166), (27, 56160), (28, 56127), (29, 56115), (30, 56112), (31, 56088), (32, 56043), (33, 56025), (34, 55992), (35, 55959), (36, 55950), (37, 55944), (38, 55938), (39, 55890), (40, 55869), (41, 55773), (42, 55770), (43, 55764), (44, 55740), (45, 55734), (46, 55719), (47, 55659), (48, 55611), (49, 55572), (51, 55533), (52, 55530), (53, 55521), (55, 55416), (56, 55398), (57, 55395), (58, 55383), (59, 55365), (60, 55356),

Gene: NiebruSaylor\_90 Start: 56117, Stop: 54609, Start Num: 2

Candidate Starts for NiebruSaylor\_90:

(1, 56168), (Start: 2 @56117 has 22 MA's), (3, 56105), (4, 56087), (5, 56063), (6, 55985), (7, 55970), (8, 55952), (9, 55889), (10, 55883), (11, 55877), (12, 55841), (13, 55787), (14, 55772), (15, 55748), (16, 55721), (17, 55706), (18, 55688), (19, 55667), (20, 55601), (21, 55598), (22, 55592), (23, 55580), (24, 55463), (25, 55433), (26, 55427), (27, 55421), (28, 55388), (29, 55376), (30, 55373), (31, 55349), (32, 55304), (33, 55286), (34, 55253), (35, 55220), (36, 55211), (37, 55205), (38, 55199), (39, 55151), (40, 55130), (41, 55034), (42, 55031), (43, 55025), (44, 55001), (45, 54995), (46, 54980), (47, 54920), (48, 54872), (49, 54833), (51, 54794), (52, 54791), (53, 54782), (55, 54677), (56, 54659), (57, 54656), (58, 54644),

Gene: Ryadel\_94 Start: 57470, Stop: 55962, Start Num: 2

Candidate Starts for Ryadel\_94:

(1, 57521), (Start: 2 @57470 has 22 MA's), (3, 57458), (4, 57440), (5, 57416), (6, 57338), (7, 57323),  
(8, 57305), (9, 57242), (10, 57236), (11, 57230), (12, 57194), (13, 57140), (14, 57125), (15, 57101),  
(16, 57074), (17, 57059), (18, 57041), (19, 57020), (20, 56954), (21, 56951), (22, 56945), (23, 56933),  
(24, 56816), (25, 56786), (26, 56780), (27, 56774), (28, 56741), (29, 56729), (30, 56726), (31, 56702),  
(32, 56657), (33, 56639), (34, 56606), (35, 56573), (36, 56564), (37, 56558), (38, 56552), (39, 56504),  
(40, 56483), (41, 56387), (42, 56384), (43, 56378), (44, 56354), (45, 56348), (46, 56333), (47, 56273),  
(48, 56225), (49, 56186), (50, 56150), (51, 56147), (52, 56144), (53, 56135), (55, 56030), (56, 56012),  
(57, 56009), (58, 55997), (59, 55979),

Gene: SchoolBus\_89 Start: 56363, Stop: 54855, Start Num: 2

Candidate Starts for SchoolBus\_89:

(1, 56414), (Start: 2 @56363 has 22 MA's), (3, 56351), (4, 56333), (5, 56309), (6, 56231), (7, 56216),  
(8, 56198), (9, 56135), (10, 56129), (11, 56123), (12, 56087), (13, 56033), (14, 56018), (15, 55994),  
(16, 55967), (17, 55952), (18, 55934), (19, 55913), (20, 55847), (21, 55844), (22, 55838), (23, 55826),  
(24, 55709), (25, 55679), (26, 55673), (27, 55667), (28, 55634), (29, 55622), (30, 55619), (31, 55595),  
(32, 55550), (33, 55532), (34, 55499), (35, 55466), (36, 55457), (37, 55451), (38, 55445), (39, 55397),  
(40, 55376), (41, 55280), (42, 55277), (43, 55271), (44, 55247), (45, 55241), (46, 55226), (47, 55166),  
(48, 55118), (49, 55079), (50, 55043), (51, 55040), (52, 55037), (53, 55028), (55, 54923), (56, 54905),  
(57, 54902), (58, 54890), (59, 54872),

Gene: Schuy\_88 Start: 56212, Stop: 54704, Start Num: 2

Candidate Starts for Schuy\_88:

(1, 56263), (Start: 2 @56212 has 22 MA's), (3, 56200), (4, 56182), (5, 56158), (6, 56080), (7, 56065),  
(8, 56047), (9, 55984), (10, 55978), (11, 55972), (12, 55936), (13, 55882), (14, 55867), (15, 55843),  
(16, 55816), (17, 55801), (18, 55783), (19, 55762), (20, 55696), (21, 55693), (22, 55687), (23, 55675),  
(24, 55558), (25, 55528), (26, 55522), (27, 55516), (28, 55483), (29, 55471), (30, 55468), (31, 55444),  
(32, 55399), (33, 55381), (34, 55348), (35, 55315), (36, 55306), (37, 55300), (38, 55294), (39, 55246),  
(40, 55225), (41, 55129), (42, 55126), (43, 55120), (44, 55096), (45, 55090), (46, 55075), (47, 55015),  
(48, 54967), (49, 54928), (50, 54892), (51, 54889), (52, 54886), (53, 54877), (55, 54772), (56, 54754),  
(57, 54751), (58, 54739), (59, 54721), (60, 54712),

Gene: Shida\_90 Start: 56307, Stop: 54799, Start Num: 2

Candidate Starts for Shida\_90:

(1, 56358), (Start: 2 @56307 has 22 MA's), (3, 56295), (4, 56277), (5, 56253), (6, 56175), (7, 56160),  
(8, 56142), (9, 56079), (10, 56073), (11, 56067), (12, 56031), (13, 55977), (14, 55962), (15, 55938),  
(16, 55911), (17, 55896), (18, 55878), (19, 55857), (20, 55791), (21, 55788), (22, 55782), (23, 55770),  
(24, 55653), (25, 55623), (26, 55617), (27, 55611), (29, 55566), (30, 55563), (31, 55539), (32, 55494),  
(33, 55476), (34, 55443), (35, 55410), (36, 55401), (37, 55395), (38, 55389), (39, 55341), (40, 55320),  
(41, 55224), (42, 55221), (43, 55215), (44, 55191), (45, 55185), (46, 55170), (47, 55110), (48, 55062),  
(49, 55023), (51, 54984), (52, 54981), (53, 54972), (55, 54867), (56, 54849), (57, 54846), (58, 54834),

Gene: Smooch\_92 Start: 57881, Stop: 56373, Start Num: 2

Candidate Starts for Smooch\_92:

(1, 57932), (Start: 2 @57881 has 22 MA's), (3, 57869), (4, 57851), (5, 57827), (6, 57749), (7, 57734),  
(8, 57716), (9, 57653), (10, 57647), (11, 57641), (12, 57605), (13, 57551), (14, 57536), (15, 57512),  
(16, 57485), (17, 57470), (18, 57452), (19, 57431), (20, 57365), (21, 57362), (22, 57356), (23, 57344),  
(24, 57227), (25, 57197), (26, 57191), (27, 57185), (28, 57152), (29, 57140), (30, 57137), (31, 57113),  
(32, 57068), (33, 57050), (34, 57017), (35, 56984), (36, 56975), (37, 56969), (38, 56963), (39, 56915),  
(40, 56894), (41, 56798), (42, 56795), (43, 56789), (44, 56765), (45, 56759), (46, 56744), (47, 56684),  
(48, 56636), (49, 56597), (50, 56561), (51, 56558), (52, 56555), (53, 56546), (56, 56423), (57, 56420),  
(58, 56408), (59, 56390),

Gene: TelAviv\_87 Start: 56601, Stop: 55093, Start Num: 2

Candidate Starts for TelAviv\_87:

(1, 56652), (Start: 2 @56601 has 22 MA's), (3, 56589), (4, 56571), (5, 56547), (6, 56469), (7, 56454),  
(8, 56436), (9, 56373), (10, 56367), (11, 56361), (12, 56325), (13, 56271), (14, 56256), (15, 56232),  
(16, 56205), (17, 56190), (18, 56172), (19, 56151), (20, 56085), (21, 56082), (22, 56076), (23, 56064),  
(24, 55947), (25, 55917), (26, 55911), (27, 55905), (28, 55872), (29, 55860), (30, 55857), (31, 55833),  
(32, 55788), (33, 55770), (34, 55737), (35, 55704), (36, 55695), (37, 55689), (38, 55683), (39, 55635),  
(40, 55614), (41, 55518), (42, 55515), (43, 55509), (44, 55485), (45, 55479), (46, 55464), (47, 55404),  
(48, 55356), (49, 55317), (50, 55281), (51, 55278), (52, 55275), (53, 55266), (55, 55161), (56, 55143),  
(57, 55140), (58, 55128), (59, 55110),

Gene: Vorrps\_90 Start: 56724, Stop: 55216, Start Num: 2

Candidate Starts for Vorrps\_90:

(1, 56775), (Start: 2 @56724 has 22 MA's), (3, 56712), (4, 56694), (5, 56670), (6, 56592), (7, 56577),  
(8, 56559), (9, 56496), (10, 56490), (11, 56484), (12, 56448), (13, 56394), (14, 56379), (15, 56355),  
(16, 56328), (17, 56313), (18, 56295), (19, 56274), (20, 56208), (21, 56205), (22, 56199), (23, 56187),  
(24, 56070), (25, 56040), (26, 56034), (27, 56028), (28, 55995), (29, 55983), (30, 55980), (31, 55956),  
(32, 55911), (33, 55893), (34, 55860), (35, 55827), (36, 55818), (37, 55812), (38, 55806), (39, 55758),  
(40, 55737), (41, 55641), (42, 55638), (43, 55632), (44, 55608), (45, 55602), (46, 55587), (47, 55527),  
(48, 55479), (49, 55440), (51, 55401), (52, 55398), (53, 55389), (55, 55284), (56, 55266), (57, 55263),  
(58, 55251),

Gene: Wildflower\_88 Start: 56297, Stop: 54789, Start Num: 2

Candidate Starts for Wildflower\_88:

(1, 56348), (Start: 2 @56297 has 22 MA's), (3, 56285), (4, 56267), (5, 56243), (6, 56165), (7, 56150),  
(8, 56132), (9, 56069), (10, 56063), (11, 56057), (12, 56021), (13, 55967), (14, 55952), (15, 55928),  
(16, 55901), (17, 55886), (18, 55868), (19, 55847), (20, 55781), (21, 55778), (22, 55772), (23, 55760),  
(24, 55643), (25, 55613), (26, 55607), (27, 55601), (28, 55568), (29, 55556), (30, 55553), (31, 55529),  
(32, 55484), (33, 55466), (34, 55433), (35, 55400), (36, 55391), (37, 55385), (38, 55379), (39, 55331),  
(40, 55310), (41, 55214), (42, 55211), (43, 55205), (44, 55181), (45, 55175), (46, 55160), (47, 55100),  
(48, 55052), (49, 55013), (50, 54977), (51, 54974), (52, 54971), (53, 54962), (55, 54857), (56, 54839),  
(57, 54836), (58, 54824), (59, 54806),

Gene: Winget\_91 Start: 56897, Stop: 55389, Start Num: 2

Candidate Starts for Winget\_91:

(1, 56948), (Start: 2 @56897 has 22 MA's), (3, 56885), (4, 56867), (5, 56843), (6, 56765), (7, 56750),  
(8, 56732), (9, 56669), (10, 56663), (11, 56657), (12, 56621), (13, 56567), (14, 56552), (15, 56528),  
(16, 56501), (17, 56486), (18, 56468), (19, 56447), (20, 56381), (21, 56378), (22, 56372), (23, 56360),  
(24, 56243), (25, 56213), (26, 56207), (27, 56201), (28, 56168), (29, 56156), (30, 56153), (31, 56129),  
(32, 56084), (33, 56066), (34, 56033), (35, 56000), (36, 55991), (37, 55985), (38, 55979), (39, 55931),  
(40, 55910), (41, 55814), (42, 55811), (43, 55805), (44, 55781), (45, 55775), (46, 55760), (47, 55700),  
(48, 55652), (49, 55613), (50, 55577), (51, 55574), (52, 55571), (53, 55562), (55, 55457), (56, 55439),  
(57, 55436), (58, 55424), (59, 55406), (60, 55397),

Gene: YungJamal\_91 Start: 56702, Stop: 55194, Start Num: 2

Candidate Starts for YungJamal\_91:

(1, 56753), (Start: 2 @56702 has 22 MA's), (3, 56690), (4, 56672), (5, 56648), (6, 56570), (7, 56555),  
(8, 56537), (10, 56468), (11, 56462), (12, 56426), (13, 56372), (14, 56357), (15, 56333), (16, 56306),  
(17, 56291), (18, 56273), (19, 56252), (20, 56186), (21, 56183), (22, 56177), (23, 56165), (24, 56048),  
(25, 56018), (26, 56012), (27, 56006), (28, 55973), (29, 55961), (30, 55958), (31, 55934), (32, 55889),  
(33, 55871), (34, 55838), (35, 55805), (36, 55796), (37, 55790), (38, 55784), (39, 55736), (40, 55715),  
(41, 55619), (42, 55616), (43, 55610), (44, 55586), (45, 55580), (46, 55565), (47, 55505), (48, 55457),  
(49, 55418), (50, 55382), (51, 55379), (52, 55376), (53, 55367), (56, 55244), (57, 55241), (58, 55229),  
(59, 55211),

Gene: Zakhe101\_89 Start: 56402, Stop: 54894, Start Num: 2

Candidate Starts for Zakhe101\_89:

(1, 56453), (Start: 2 @56402 has 22 MA's), (3, 56390), (4, 56372), (5, 56348), (6, 56270), (7, 56255),  
(8, 56237), (9, 56174), (10, 56168), (11, 56162), (12, 56126), (13, 56072), (14, 56057), (15, 56033),  
(16, 56006), (17, 55991), (18, 55973), (19, 55952), (20, 55886), (21, 55883), (22, 55877), (23, 55865),  
(24, 55748), (25, 55718), (26, 55712), (27, 55706), (28, 55673), (29, 55661), (30, 55658), (31, 55634),  
(32, 55589), (33, 55571), (34, 55538), (35, 55505), (36, 55496), (37, 55490), (38, 55484), (39, 55436),  
(40, 55415), (41, 55319), (42, 55316), (43, 55310), (44, 55286), (45, 55280), (46, 55265), (47, 55205),  
(48, 55157), (49, 55118), (50, 55082), (51, 55079), (52, 55076), (53, 55067), (55, 54962), (56, 54944),  
(57, 54941), (58, 54929), (59, 54911),