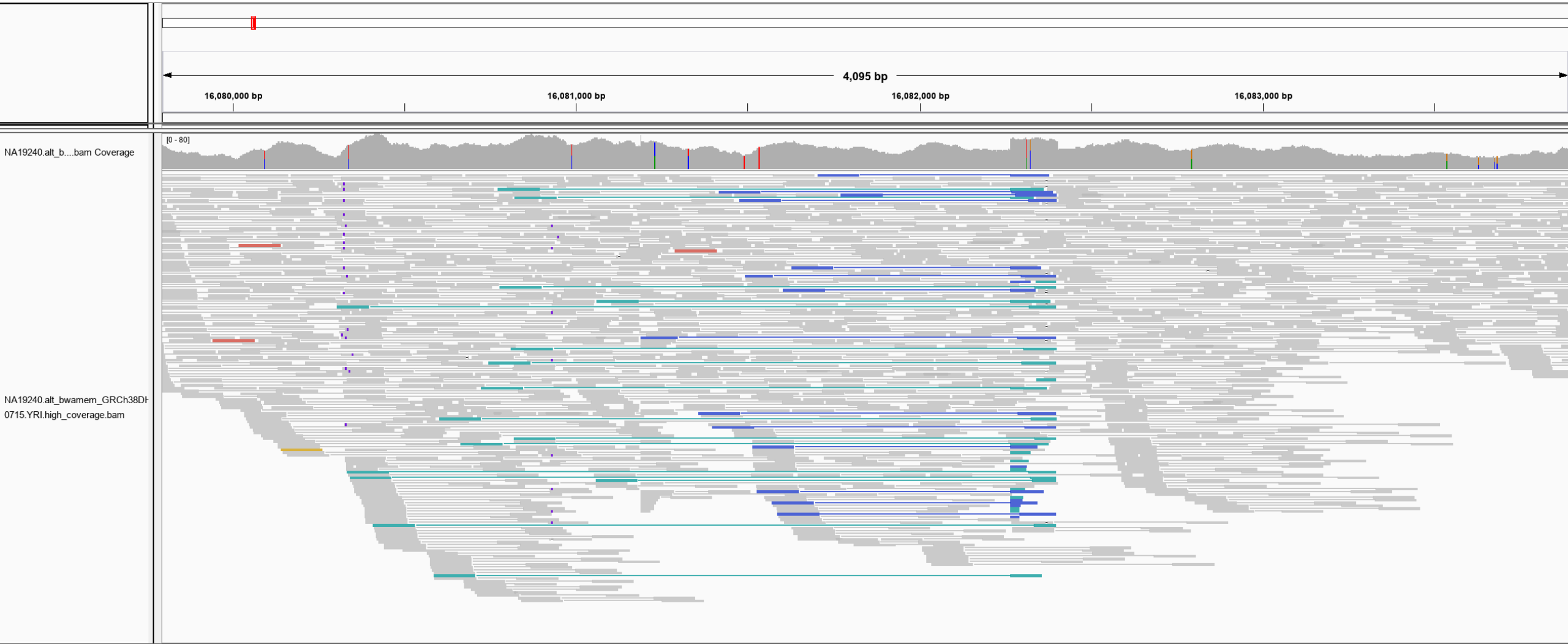


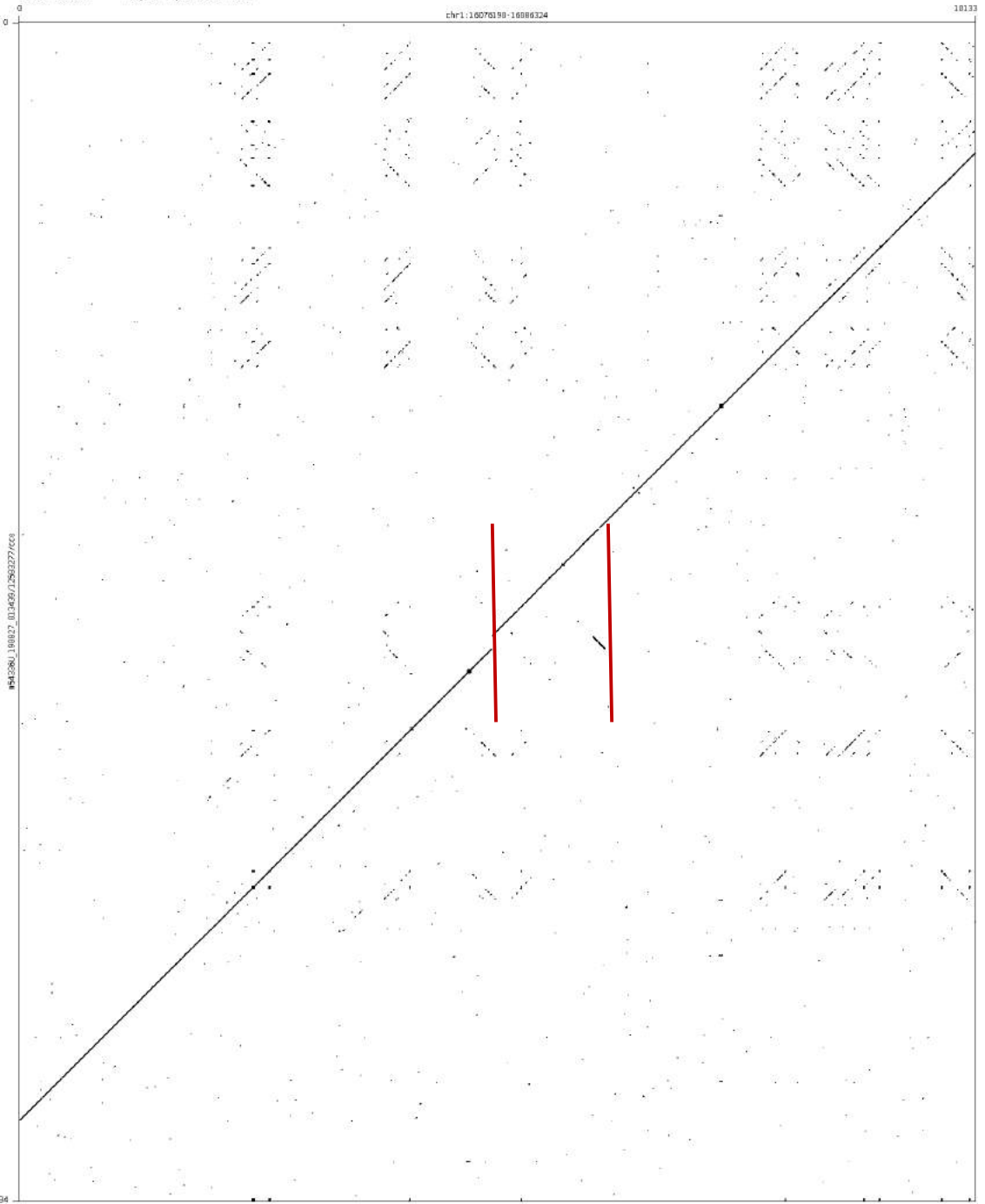
IGV view and PacBio reads Dotplot  
of each benchmark CSVs

NA19240 benchmark CSVs

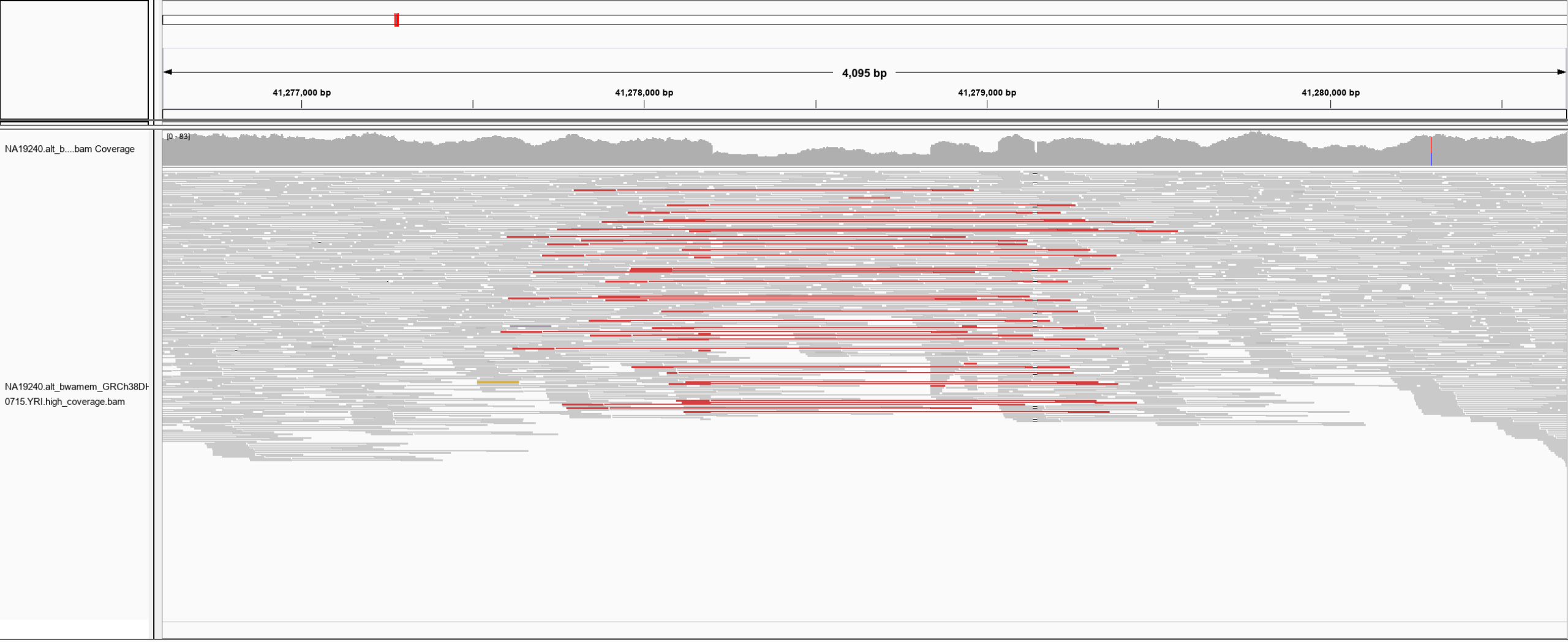
chr1:16081190-16082430



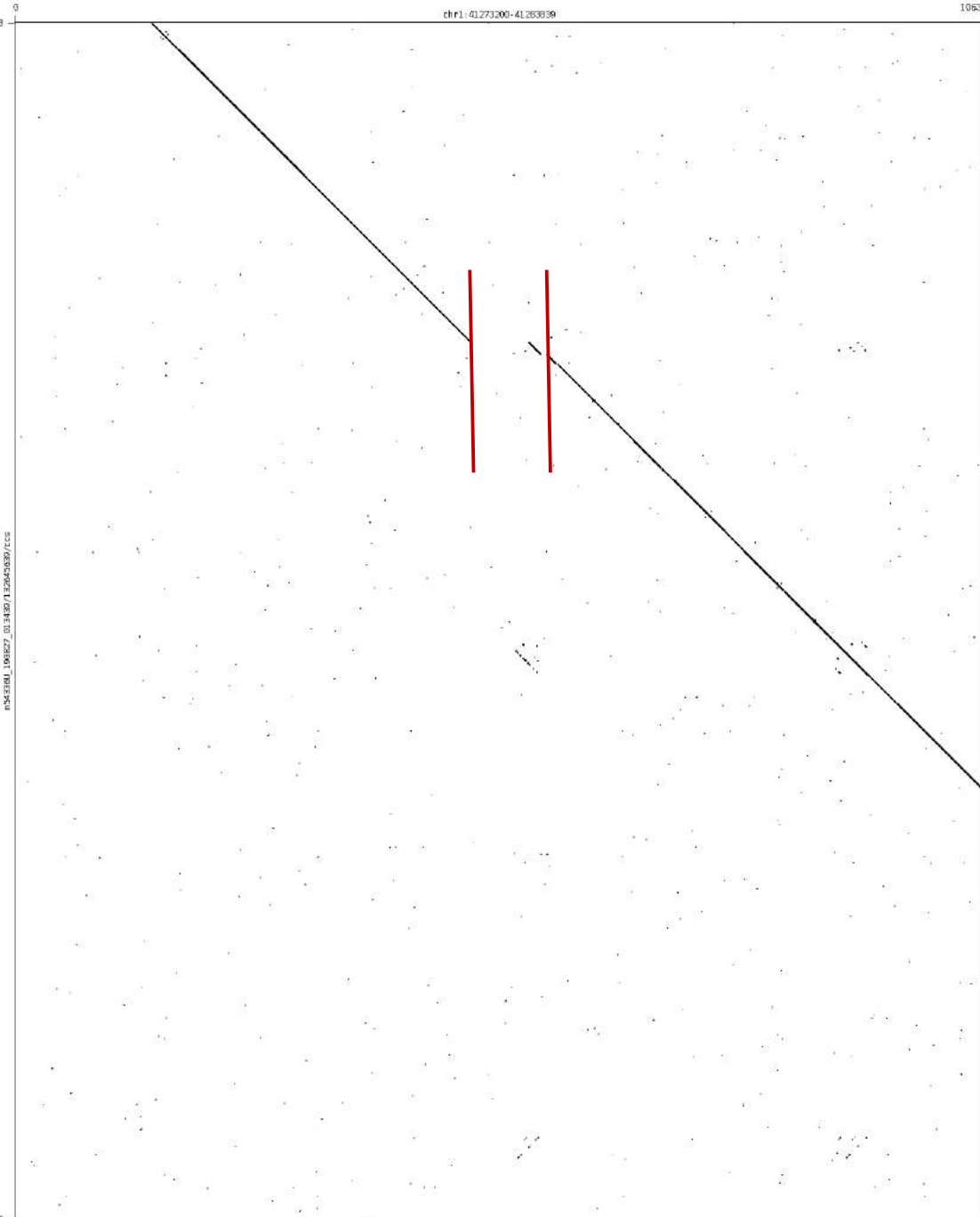
chr1:16076190-16086324 vs. s542861\_160827\_013436/12963277/ccc  
Zoon: 7: 1 GC ratio seq1: 0.5507  
Word length: 10 GC ratio seq2: 0.5367  
Window size: 0  
Matrix: edna.est Program: Gepard (1.40 final)



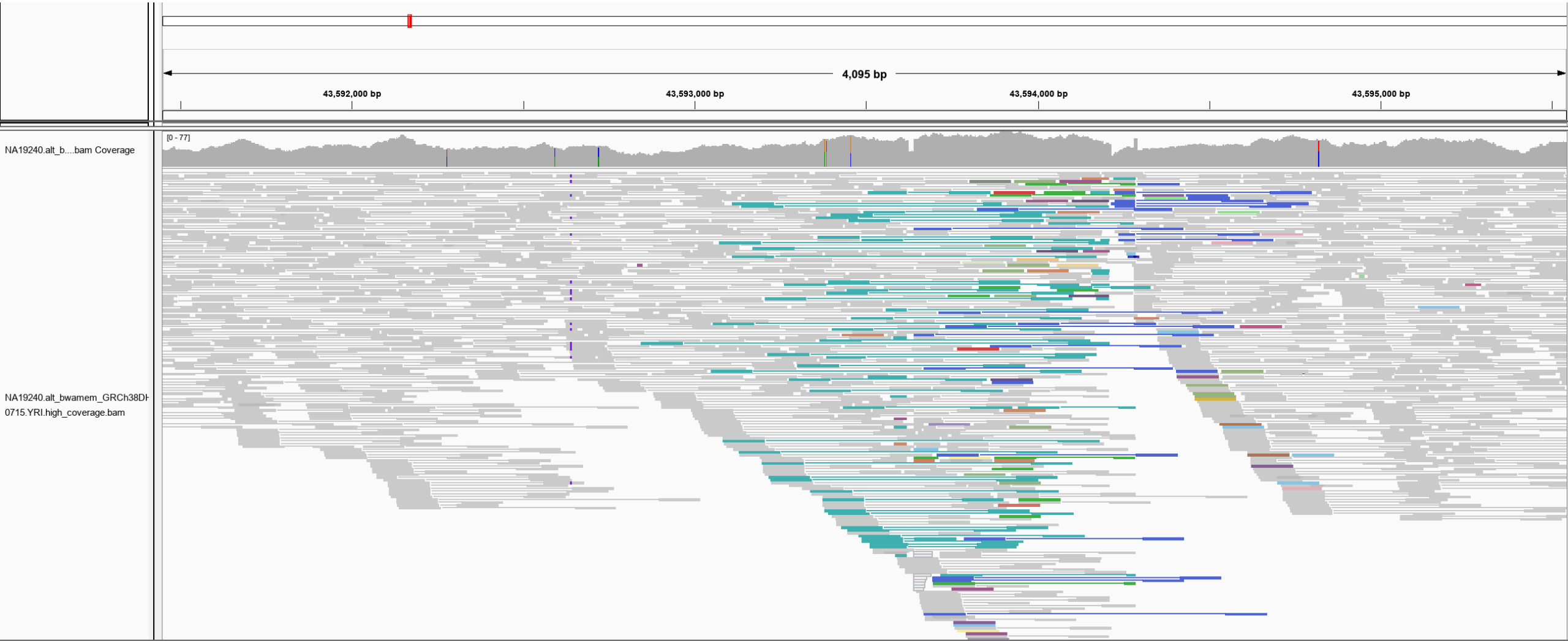
chr1:41278200-41279034



chr1:41275200-41283839 vs. rs43380\_108827\_013430/132845680/ccc  
Z000: 0 : 1 GC ratio seq1: 0.4063  
Word length: 10 GC ratio seq2: 0.4068  
Window size: 0 Program: Oepard [1.40 final]  
Matrix: odna.mat



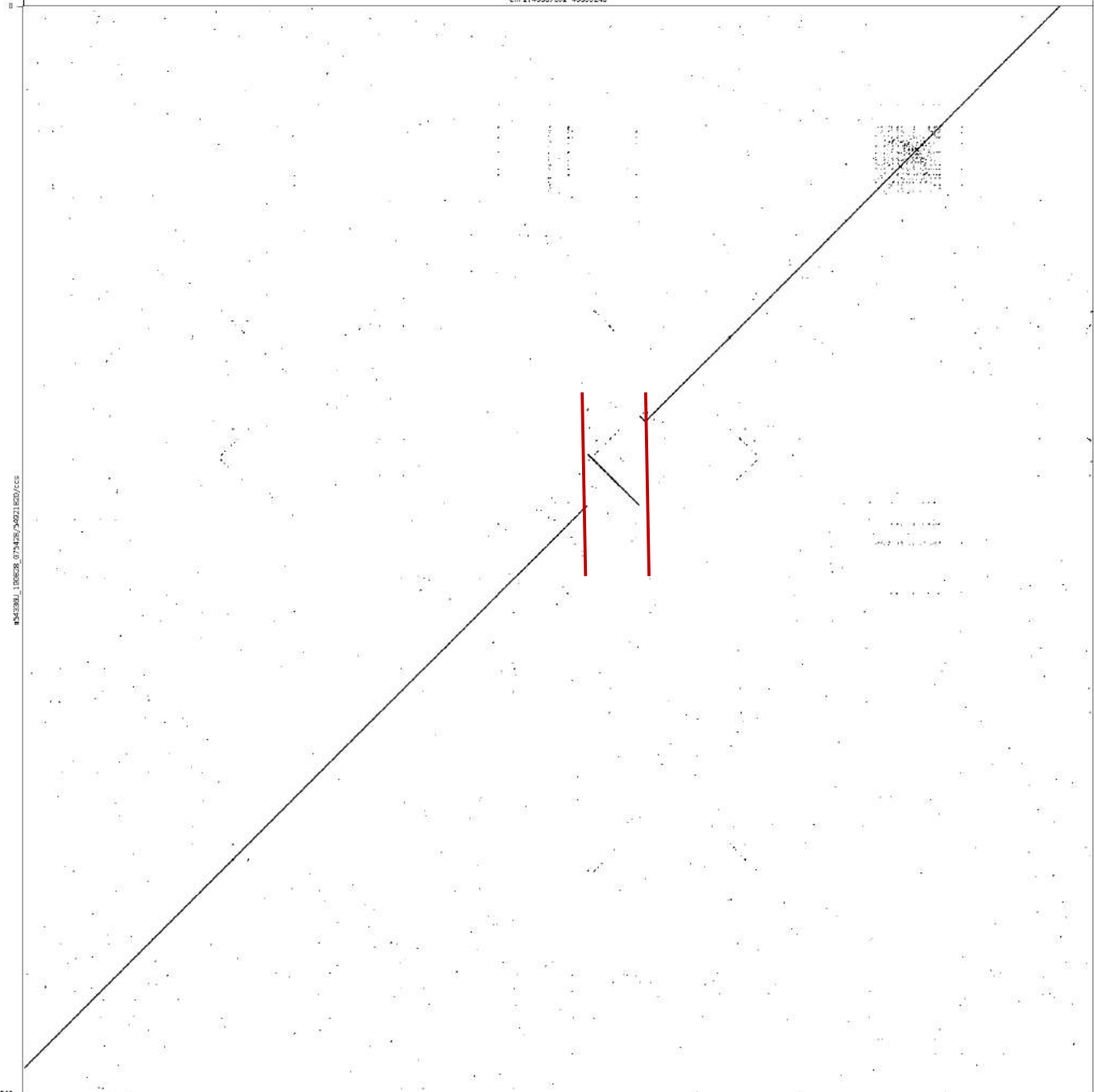
chr1:43593621-43594291



chr1:43587361-43599240 vs. rs433931190629\_075426/54921600/ccs  
Zdsk: 7 1  
Avald length: 10 GC ratio seq1: 0.5865  
Window size: 0 GC ratio seq2: 0.5845  
Matrix: edna.mat Program: Gspard [1.40 final]

chr1:43907391-43999240

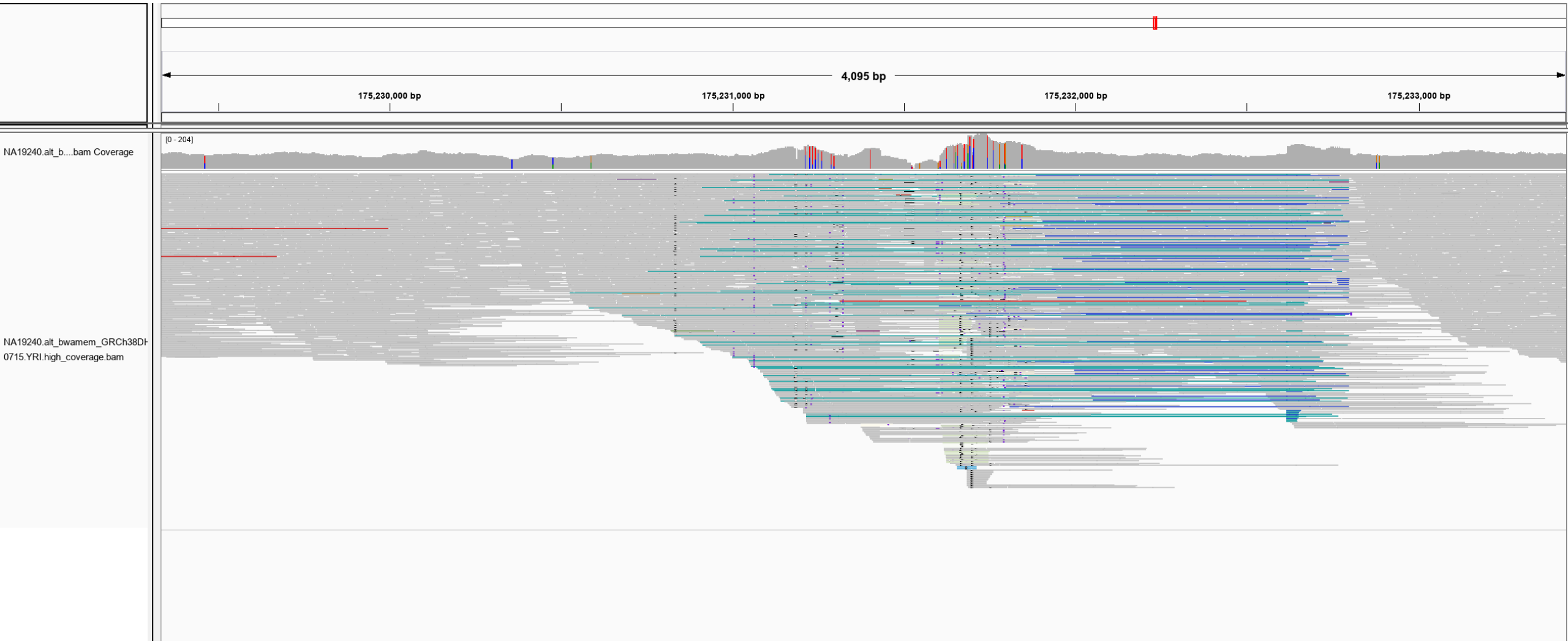
11940

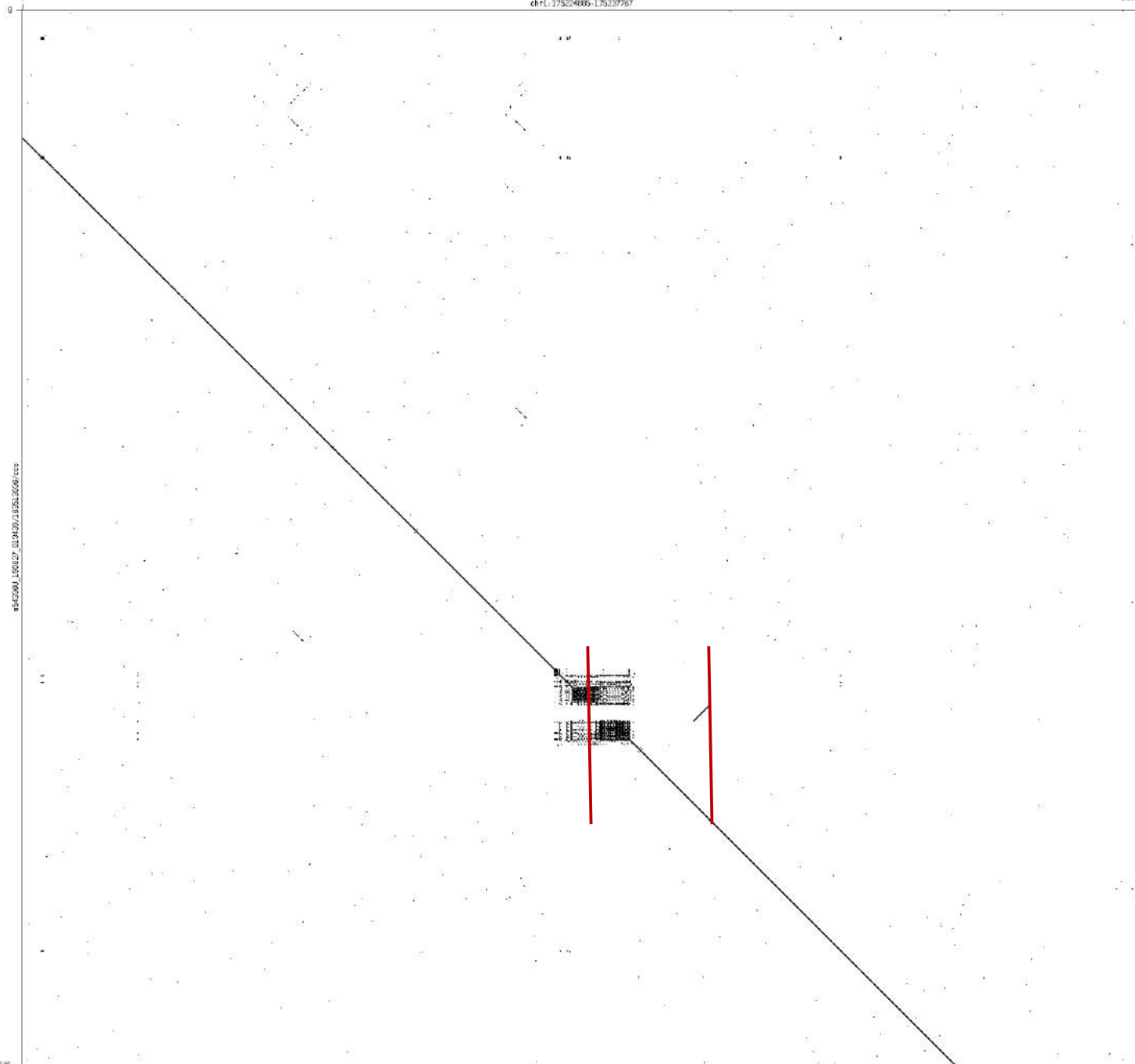


12063

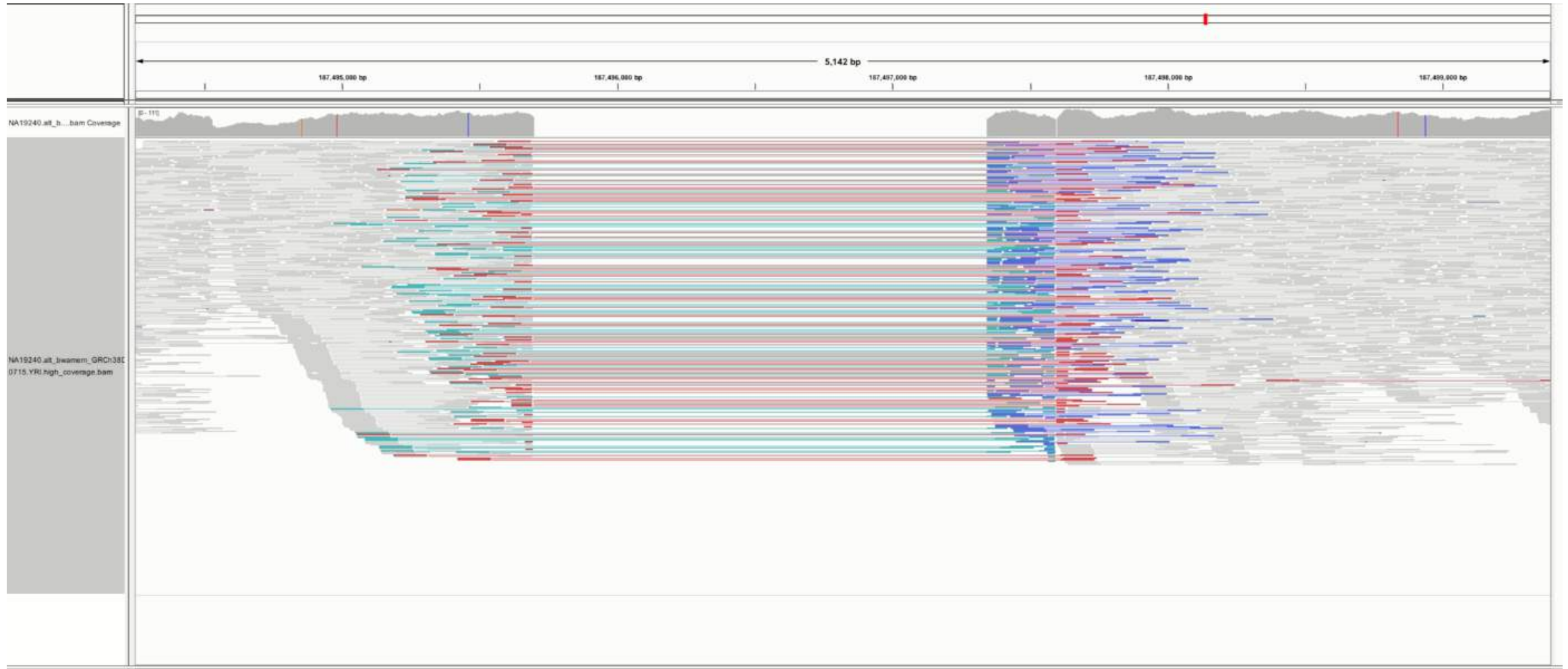


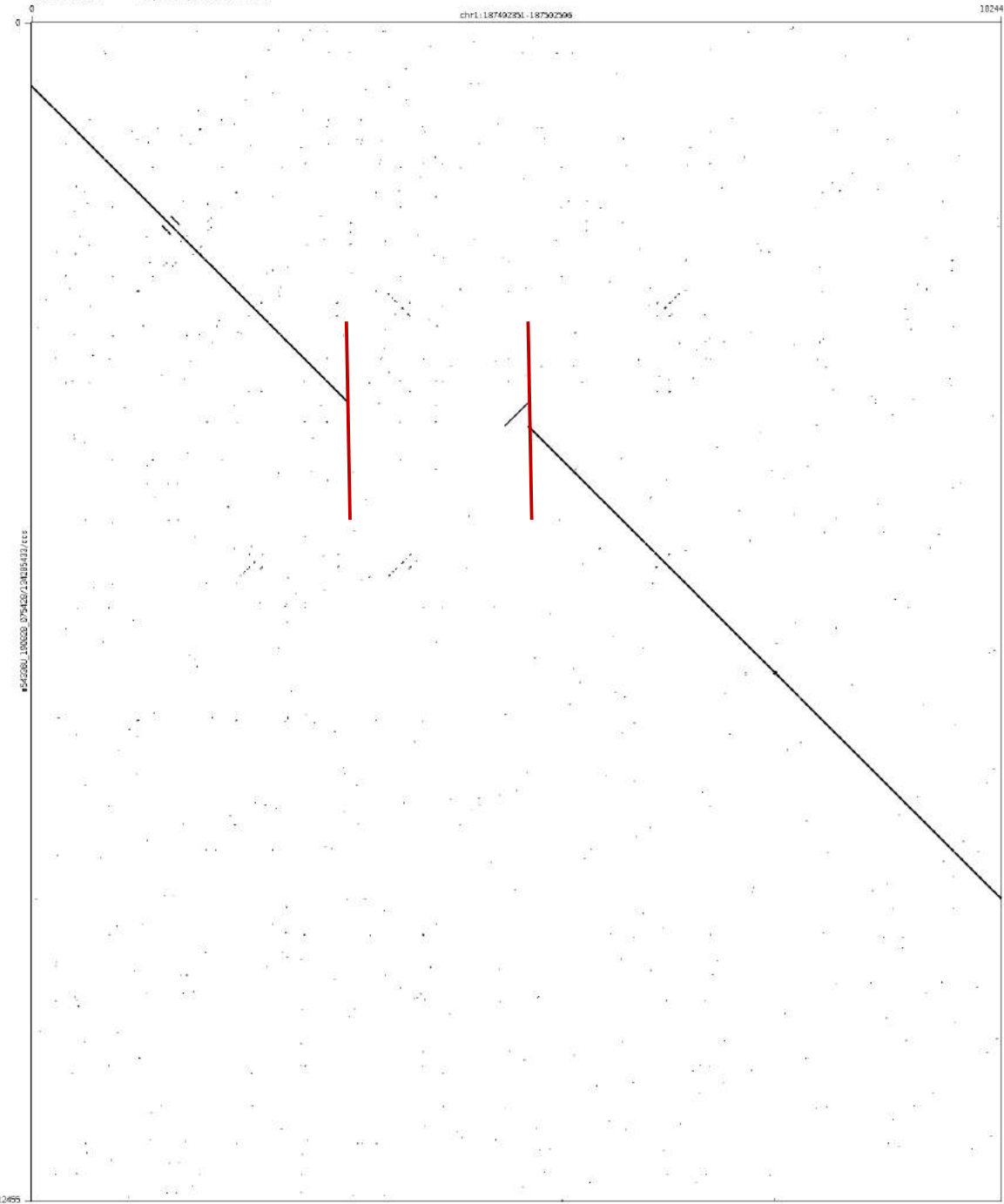
chr1:175231315-175232795





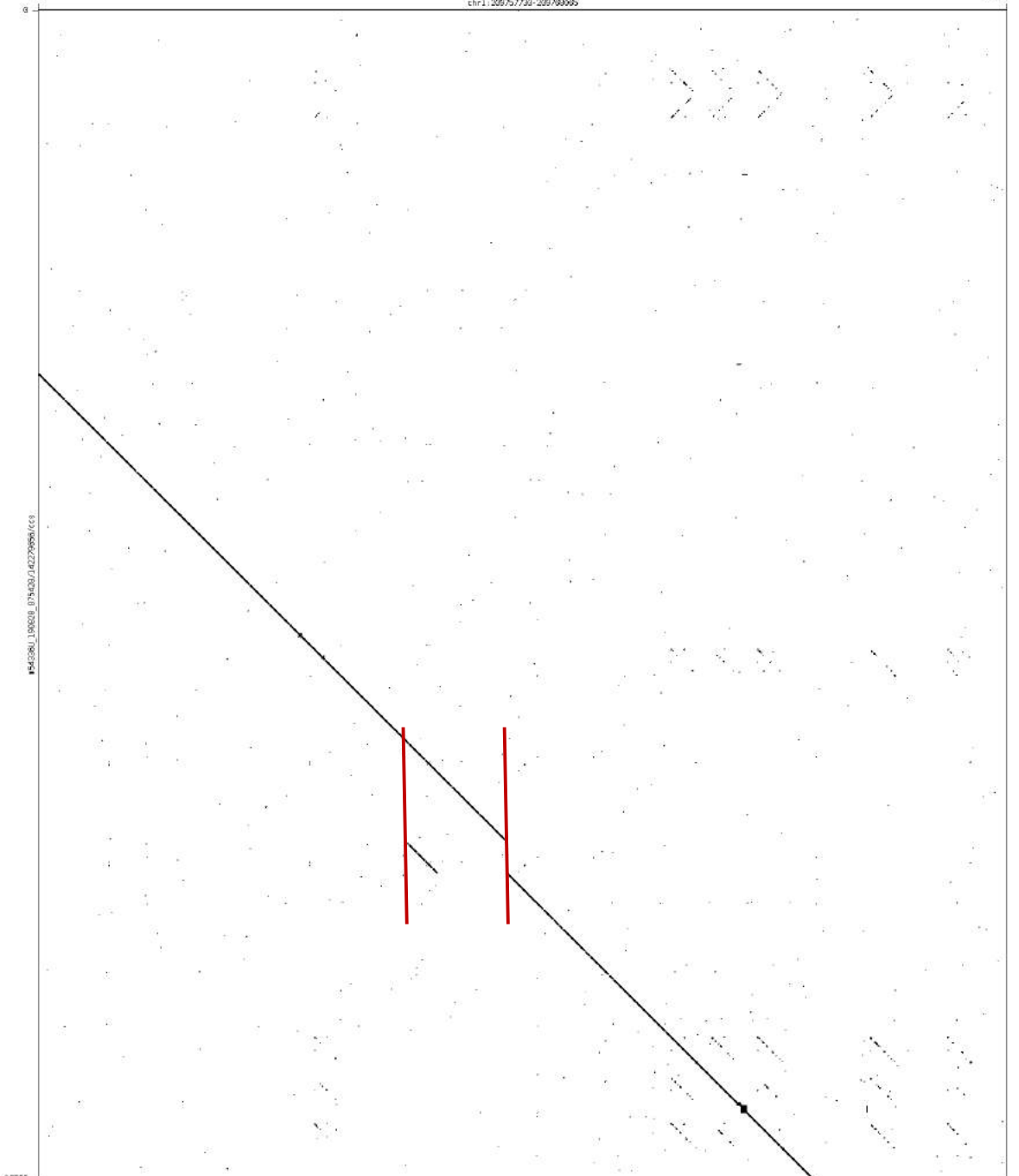
chr1:187495696-187497571



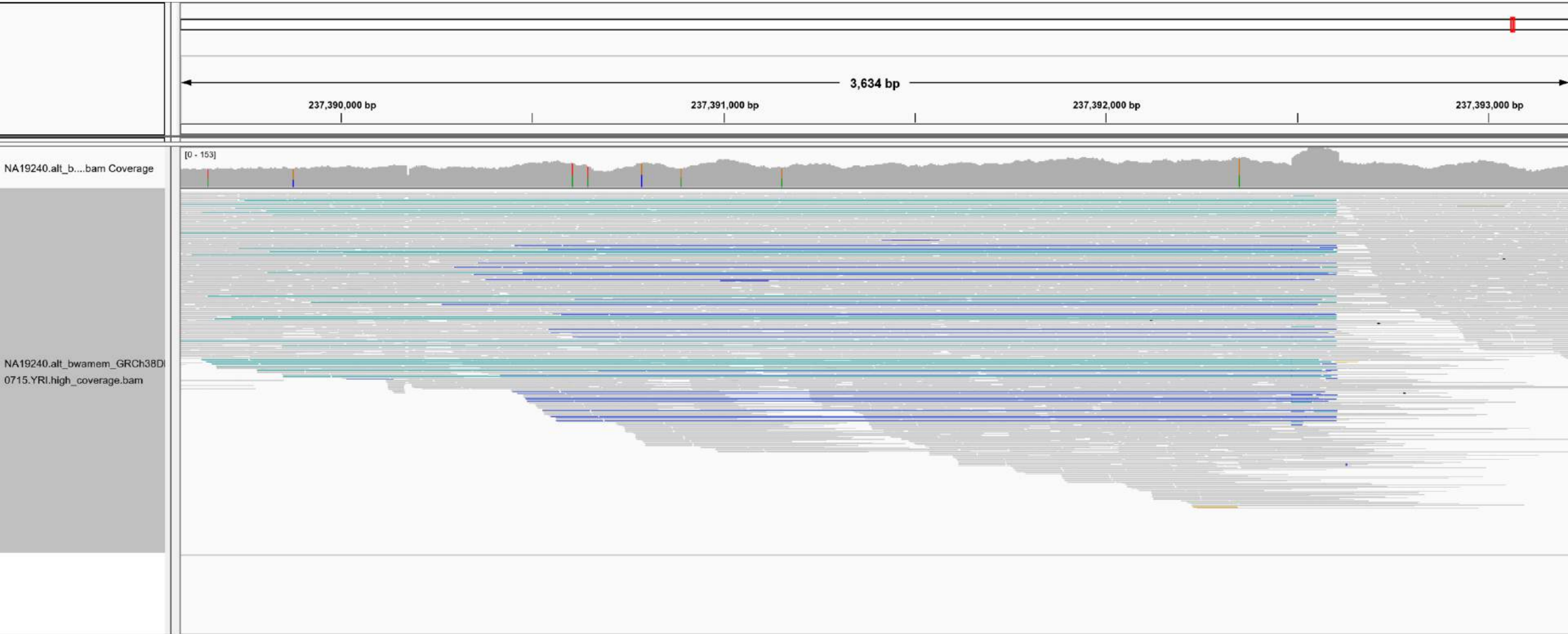


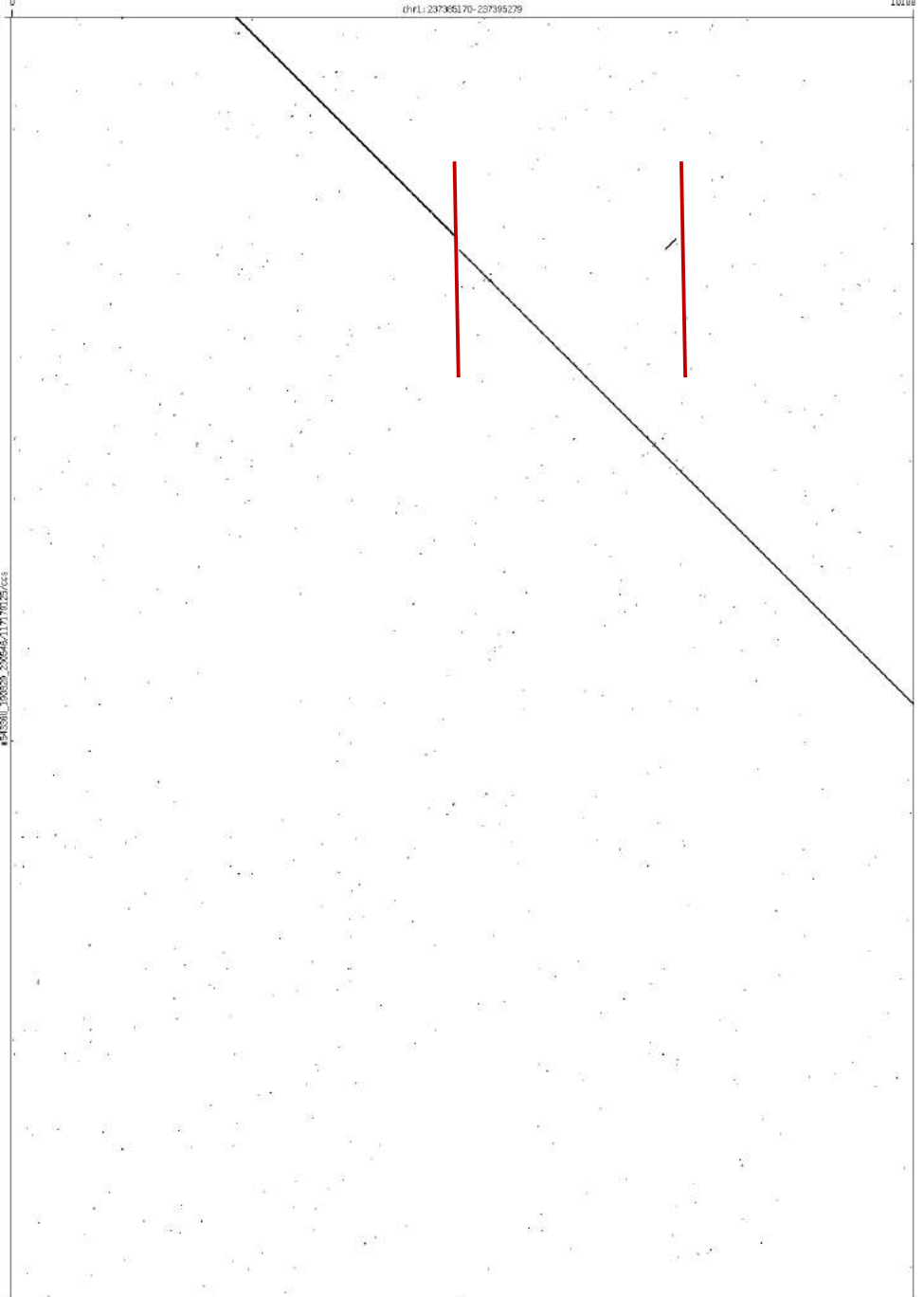
chr1:209761615-209762730





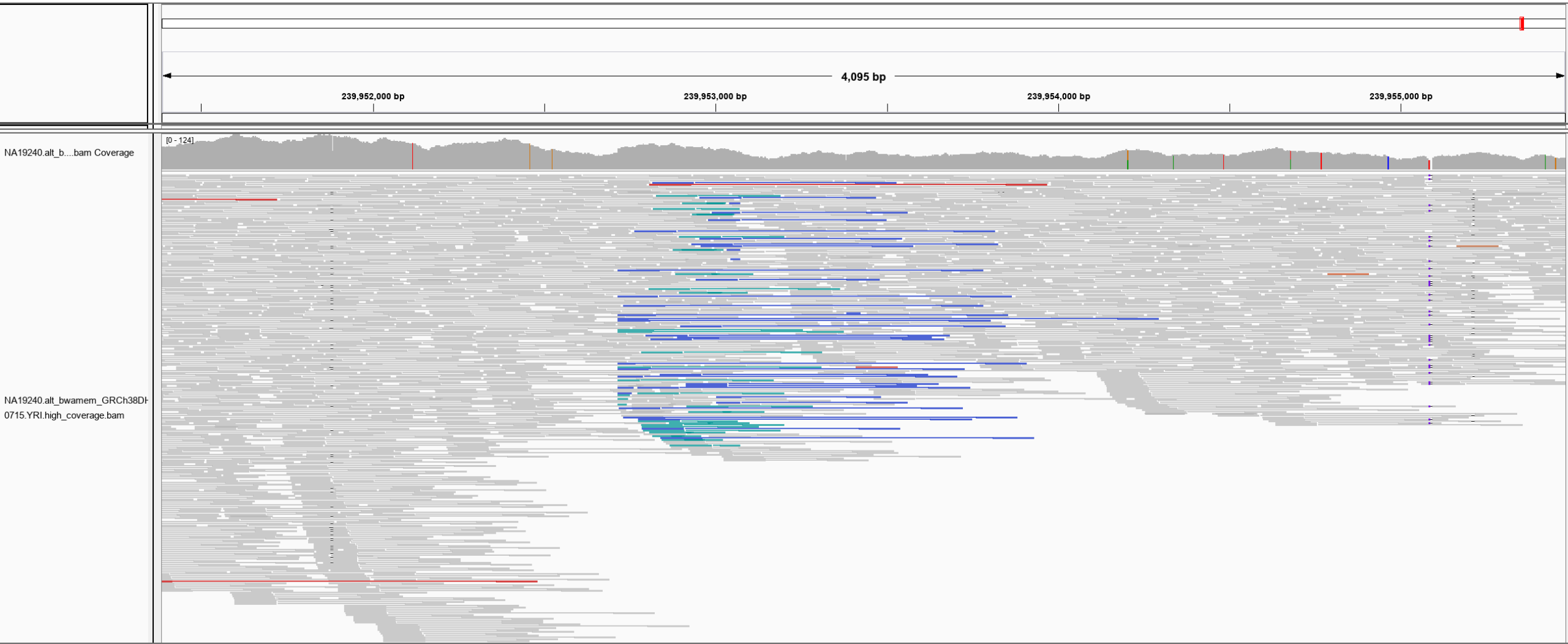
chr1:237390170-237392642



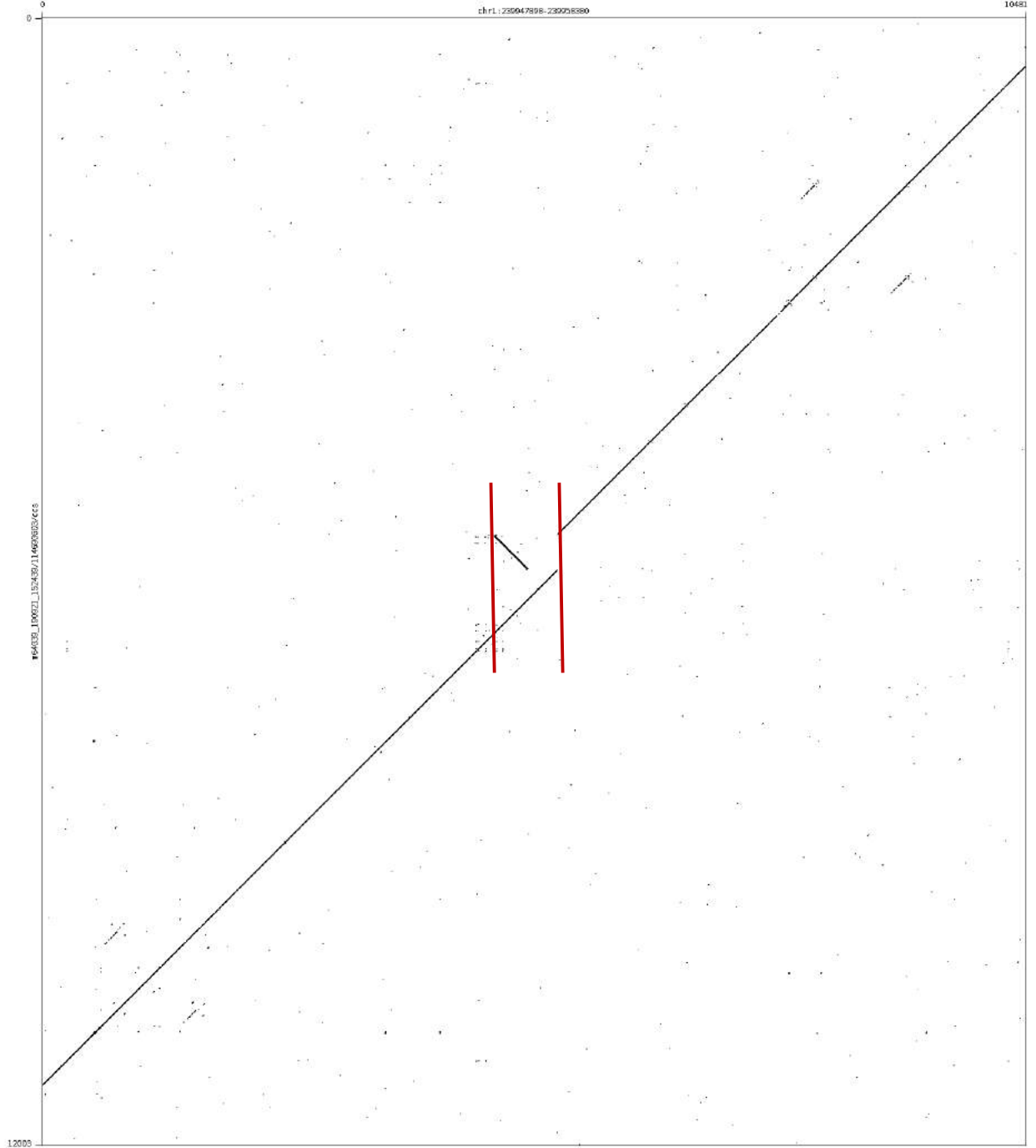




chr1:239952898-239953380



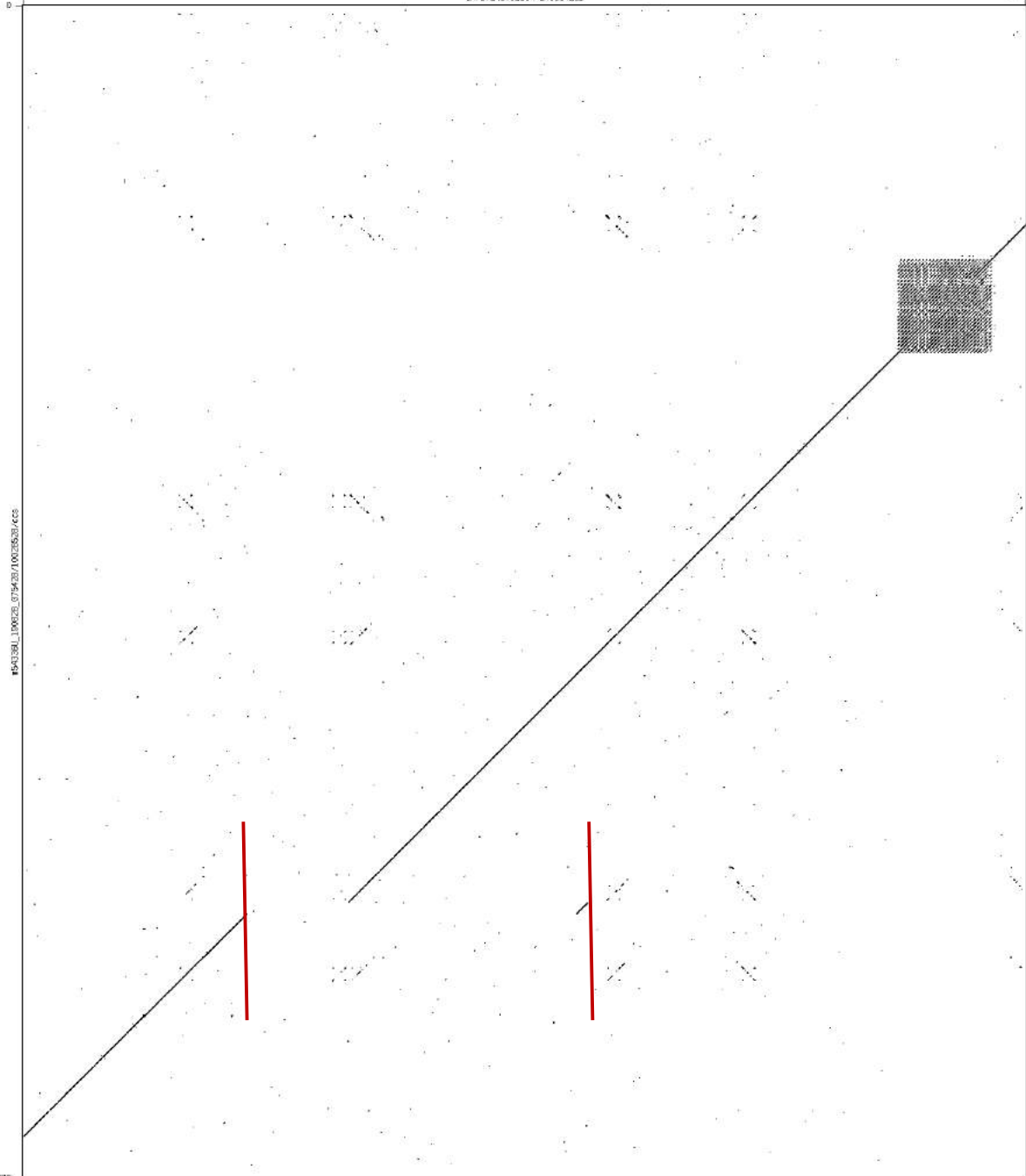
chr1:23647990-23995830 vs. s4035\_150621\_152436/11469003/ccs  
Zoom: 7.1  
Word length: 10 GC ratio seq1: 0.4654  
Window size: 0 GC ratio seq2: 0.4565  
Matrix: edna.mat Program: separd (1.40 final)



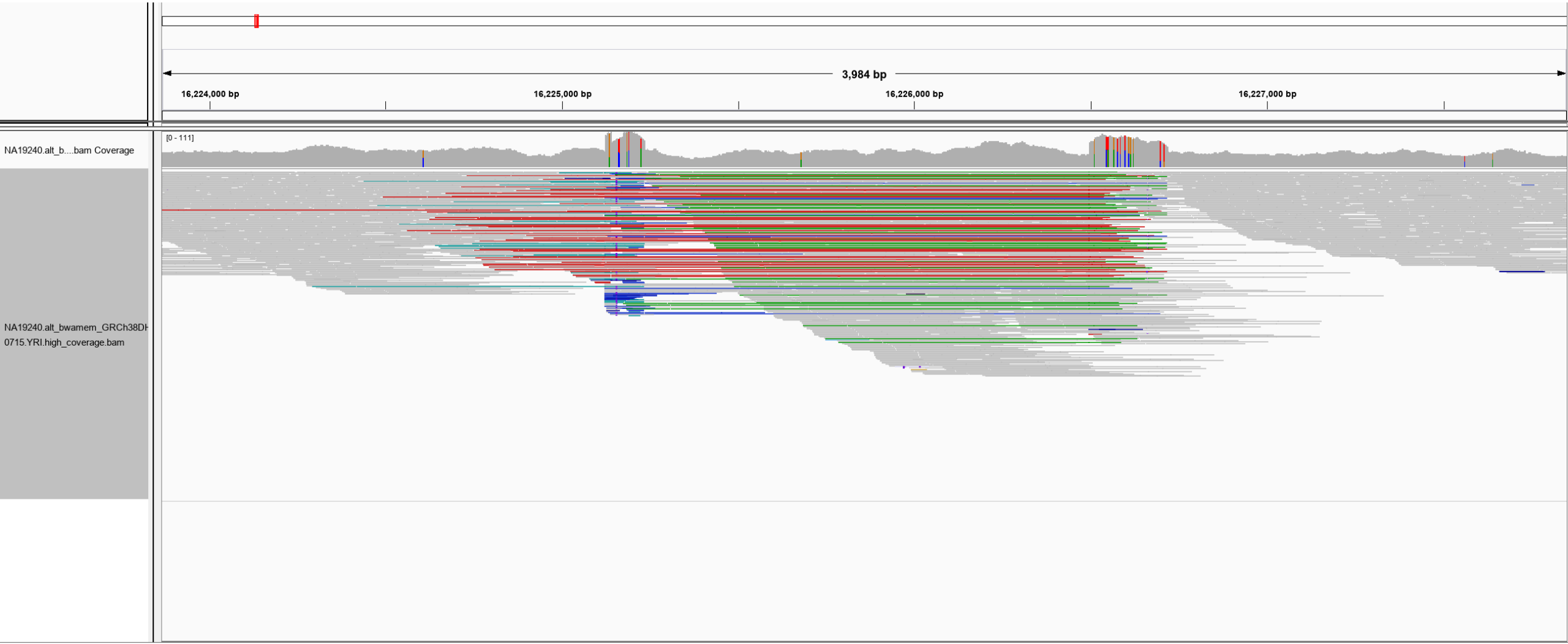
chr1:248795414-248799304



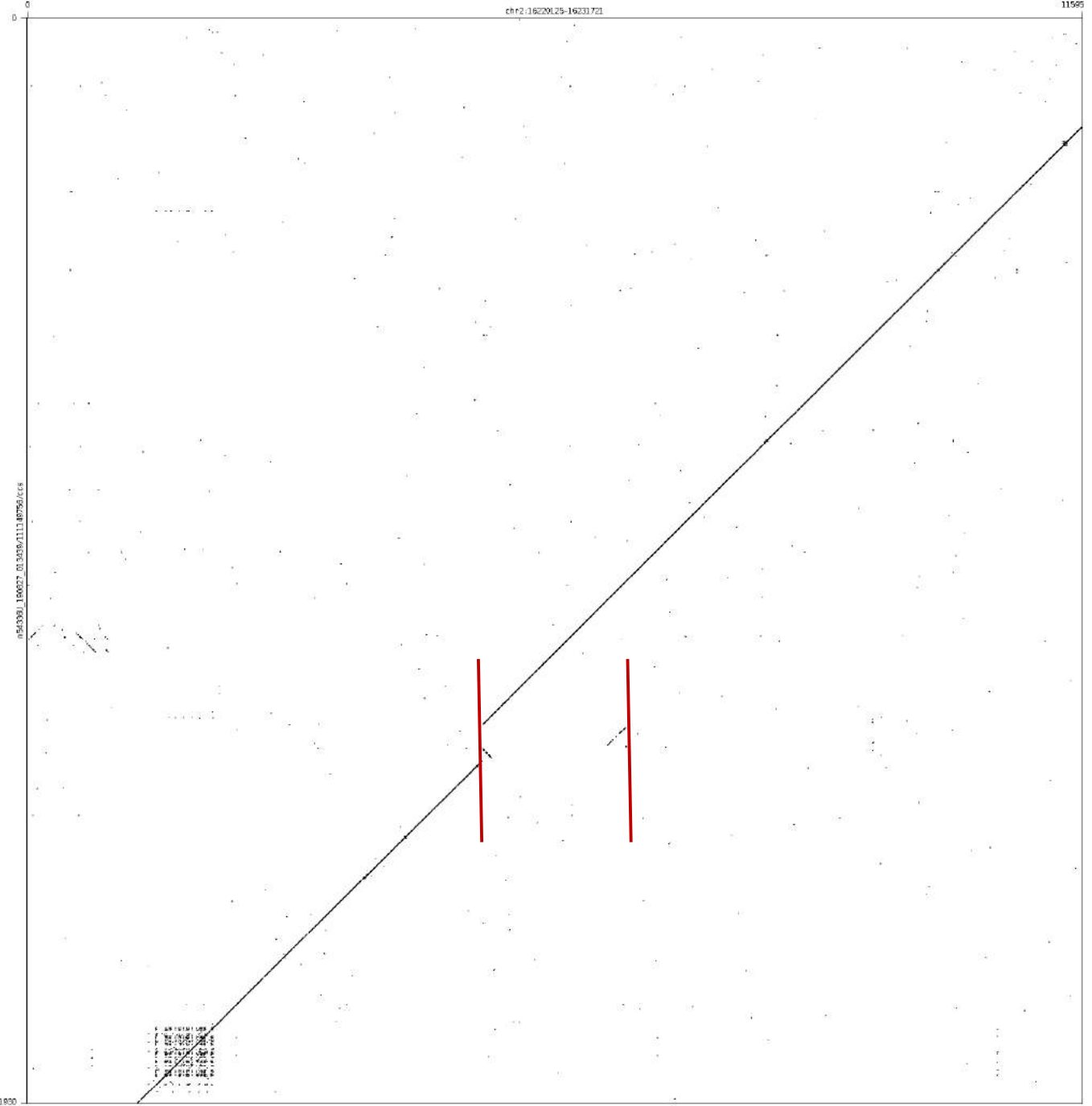
#343961\_108828\_075428/18028328/ccc



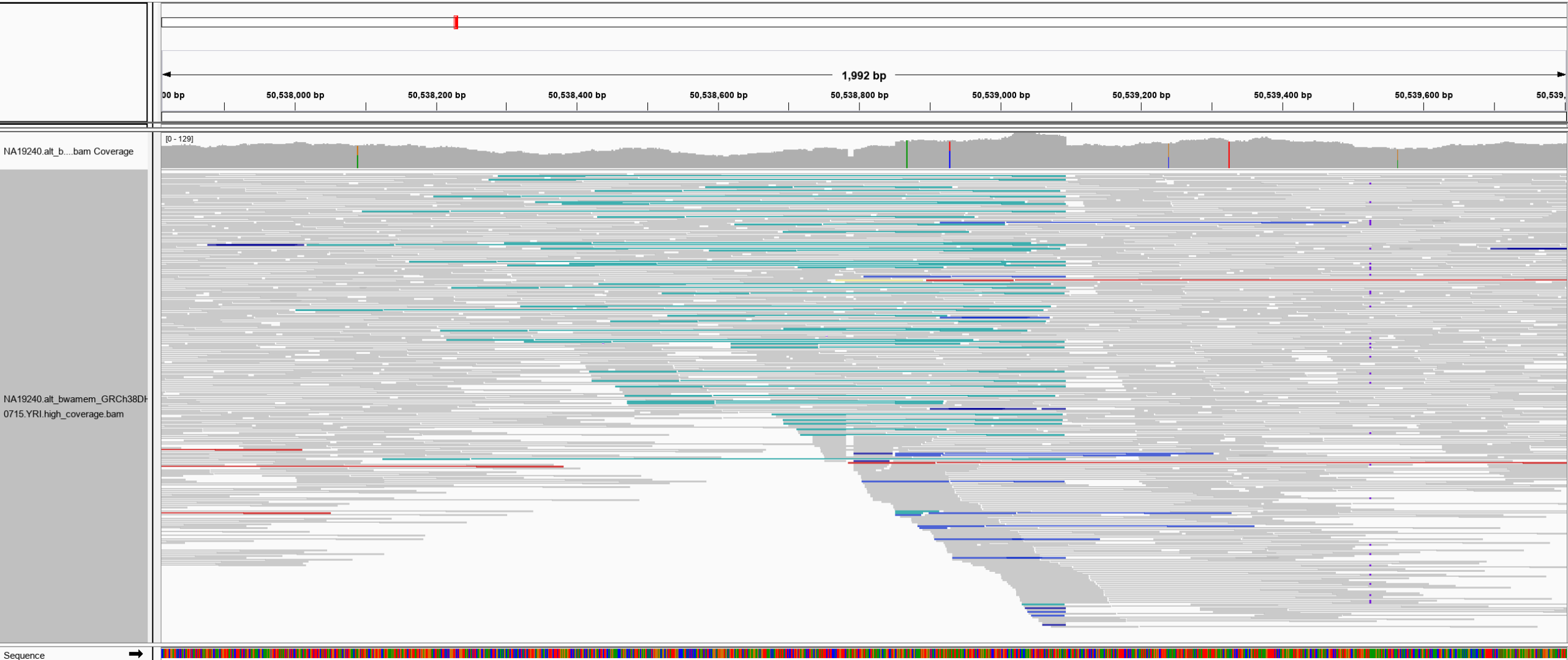
chr2:16225125-16226710

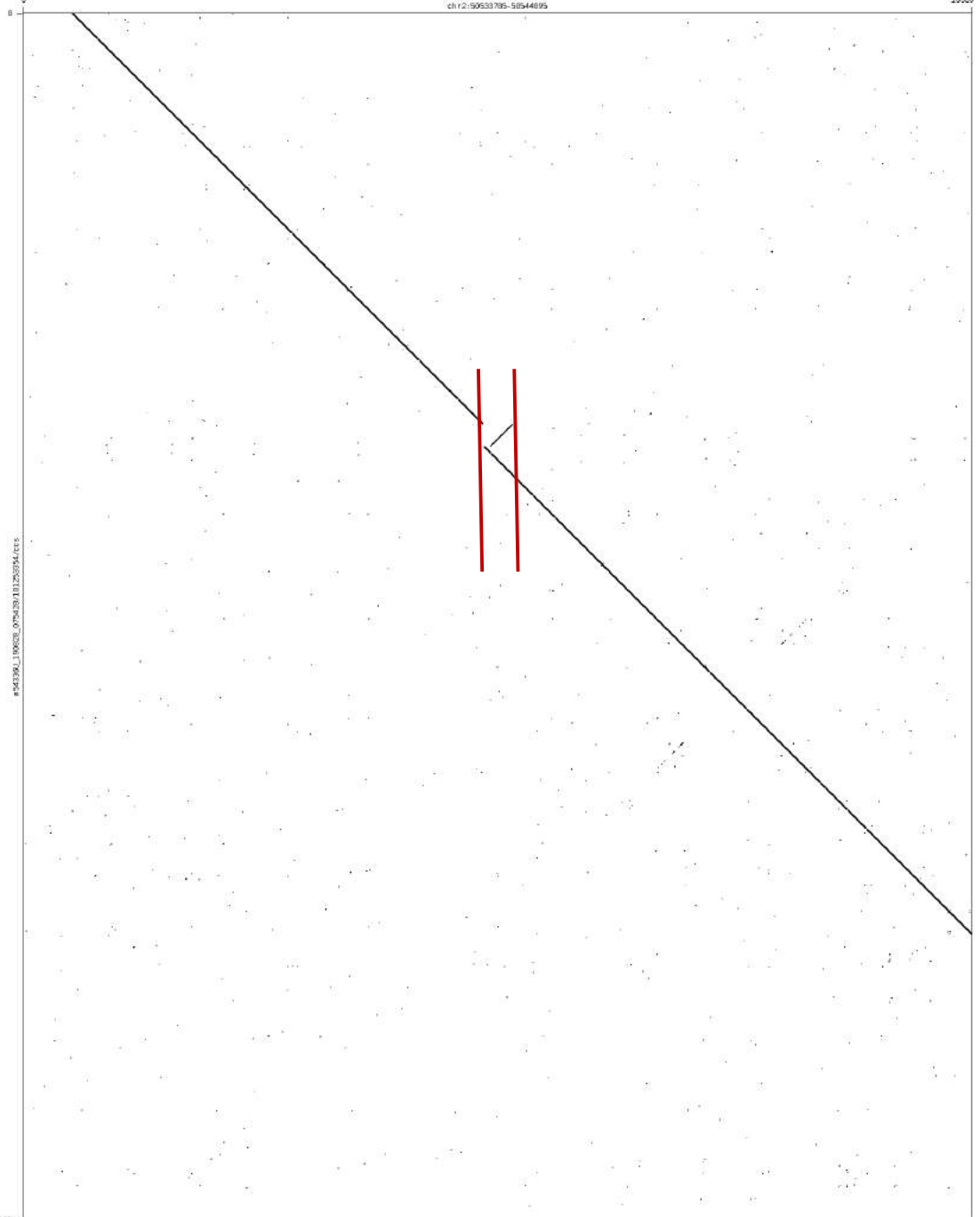


chr2:16220125-16231721 vs. n64398\_190607\_013439/111149756/ccs  
Zoom: 7.1  
Word length: 10 GC ratio seq1: 0.4637  
Window size: 0 GC ratio seq2: 0.4709  
Matrix: edaa.mat Program: cgpard (1.40 final)



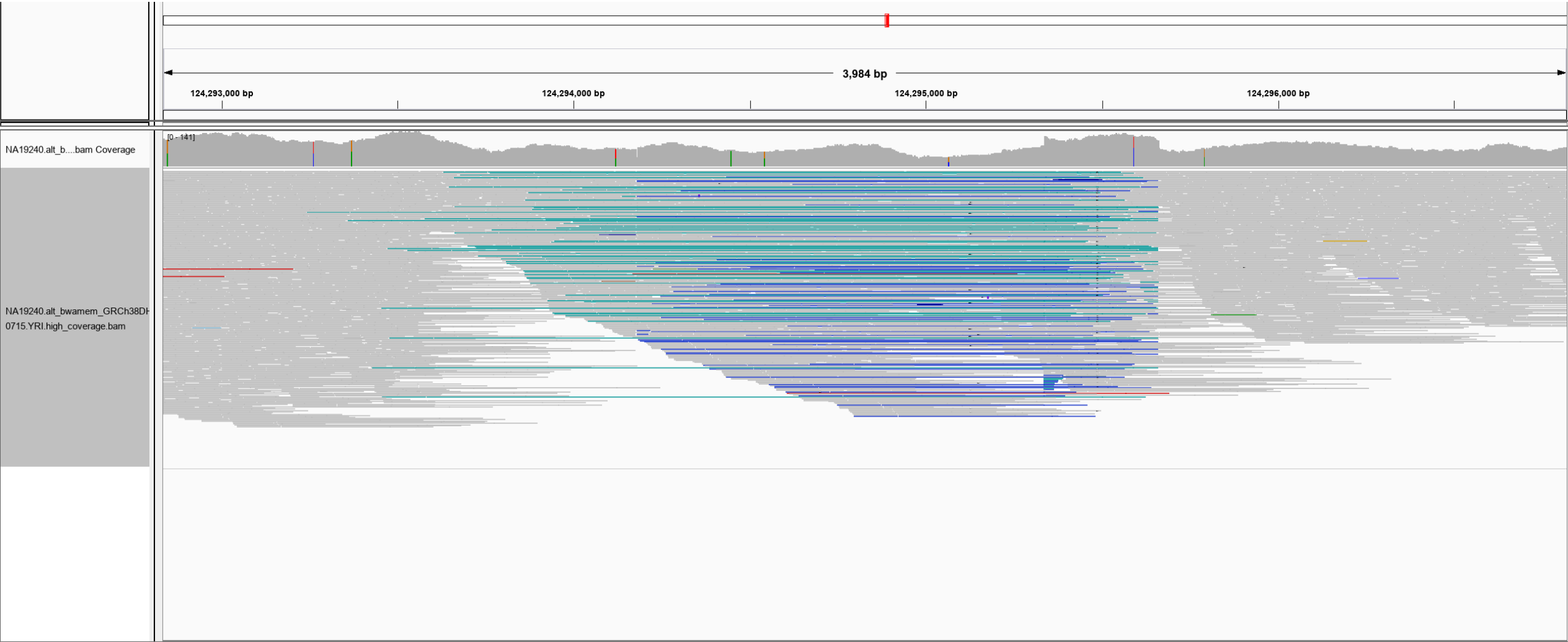
chr2:50538785-50539113

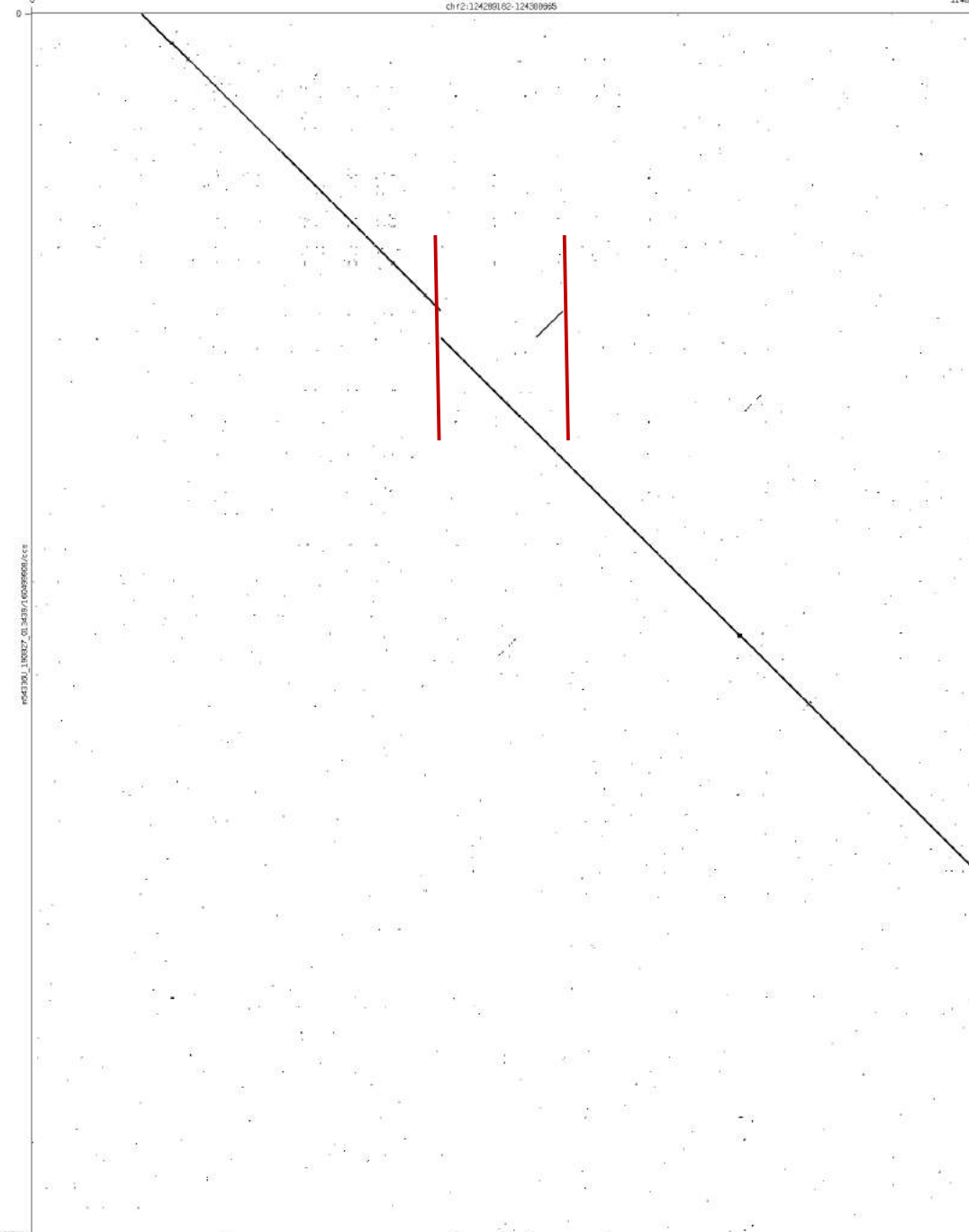




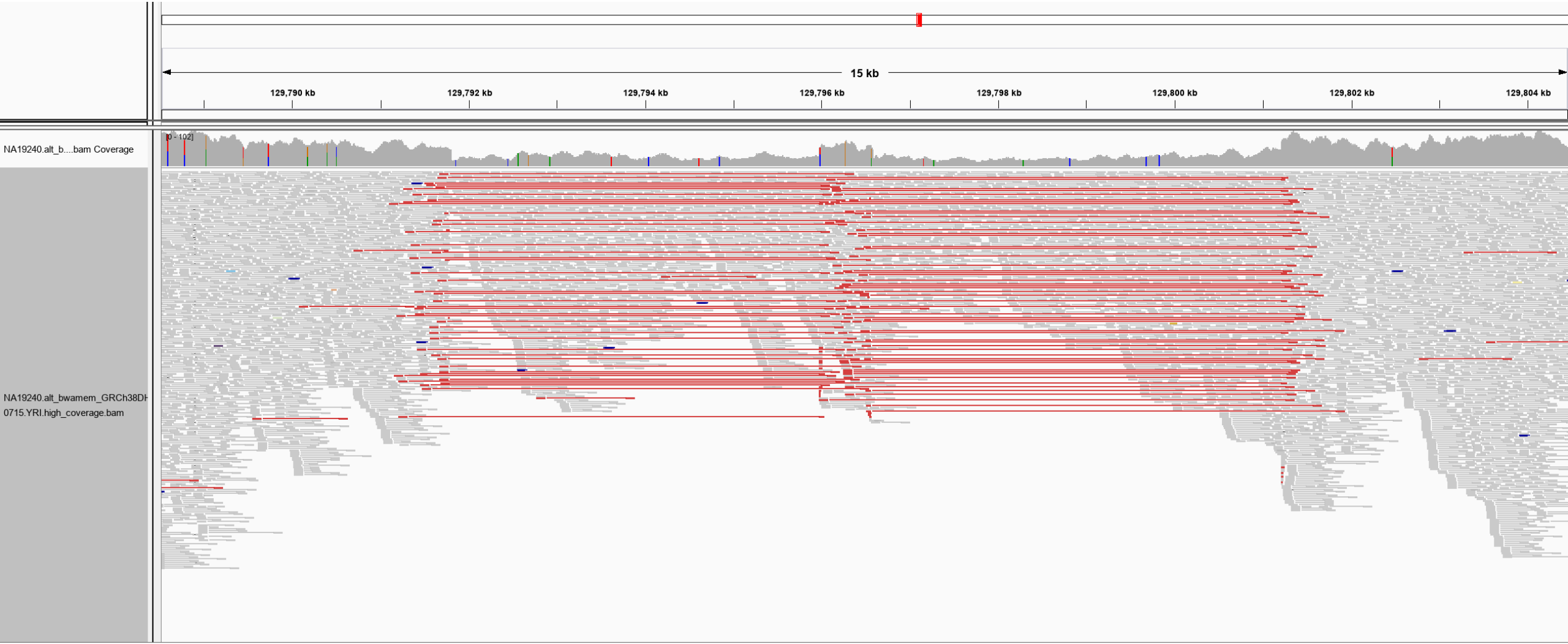


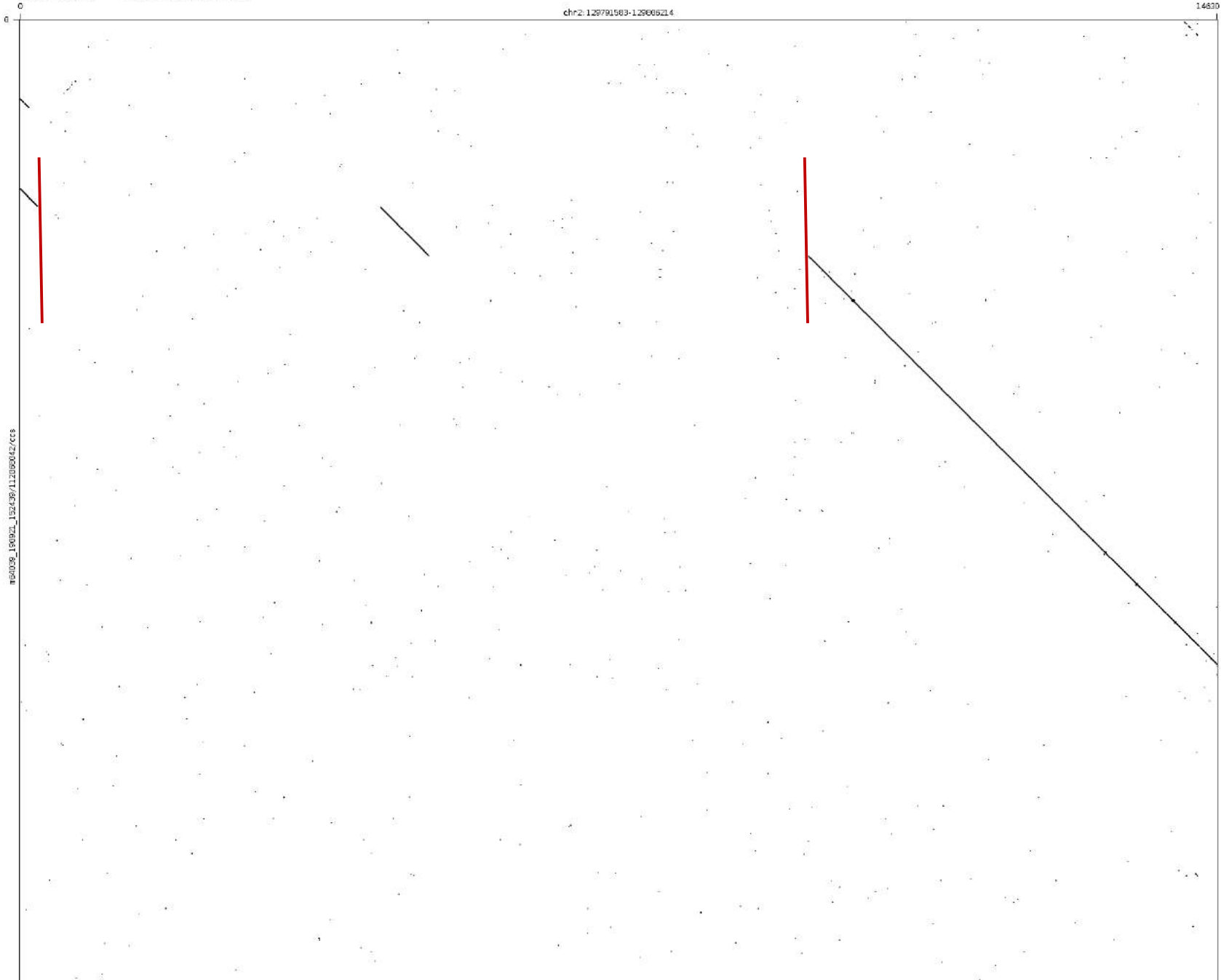
chr2:124294182-124295678



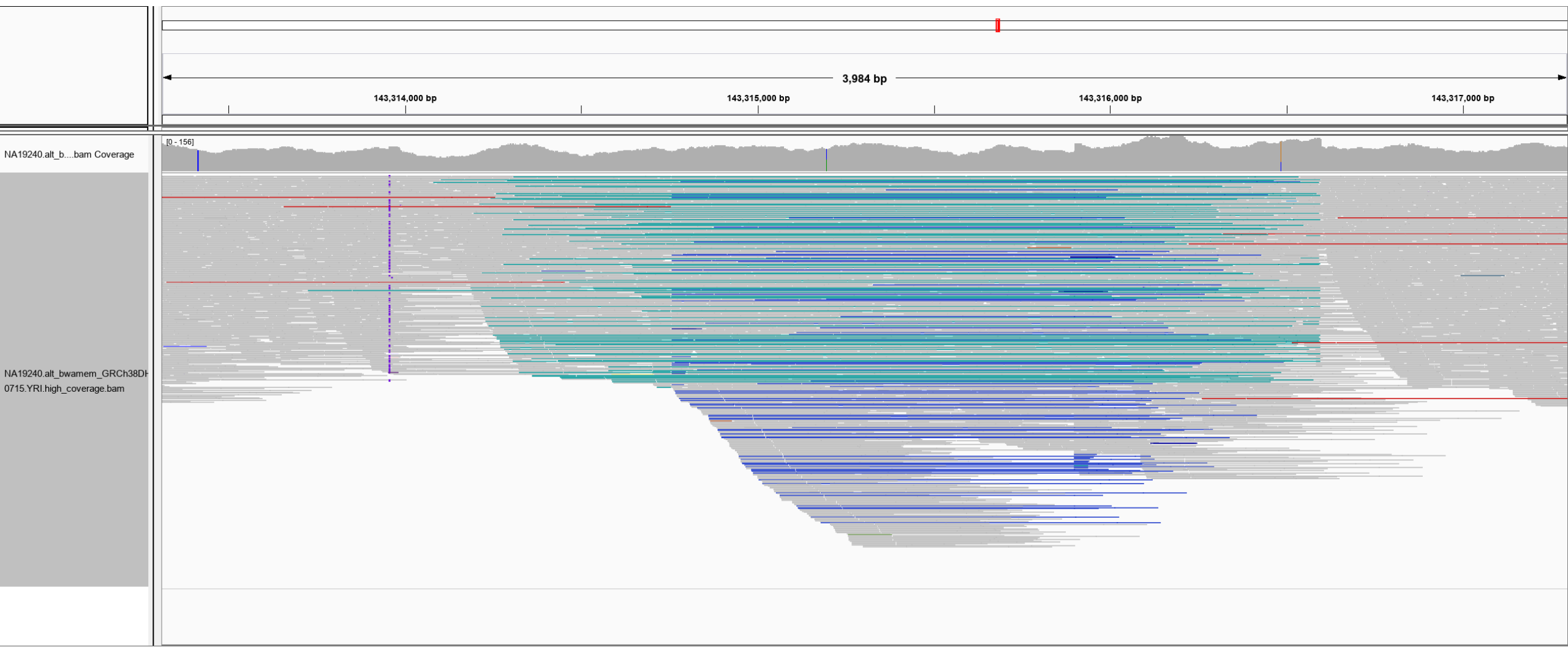


chr2: 129791792-129801213

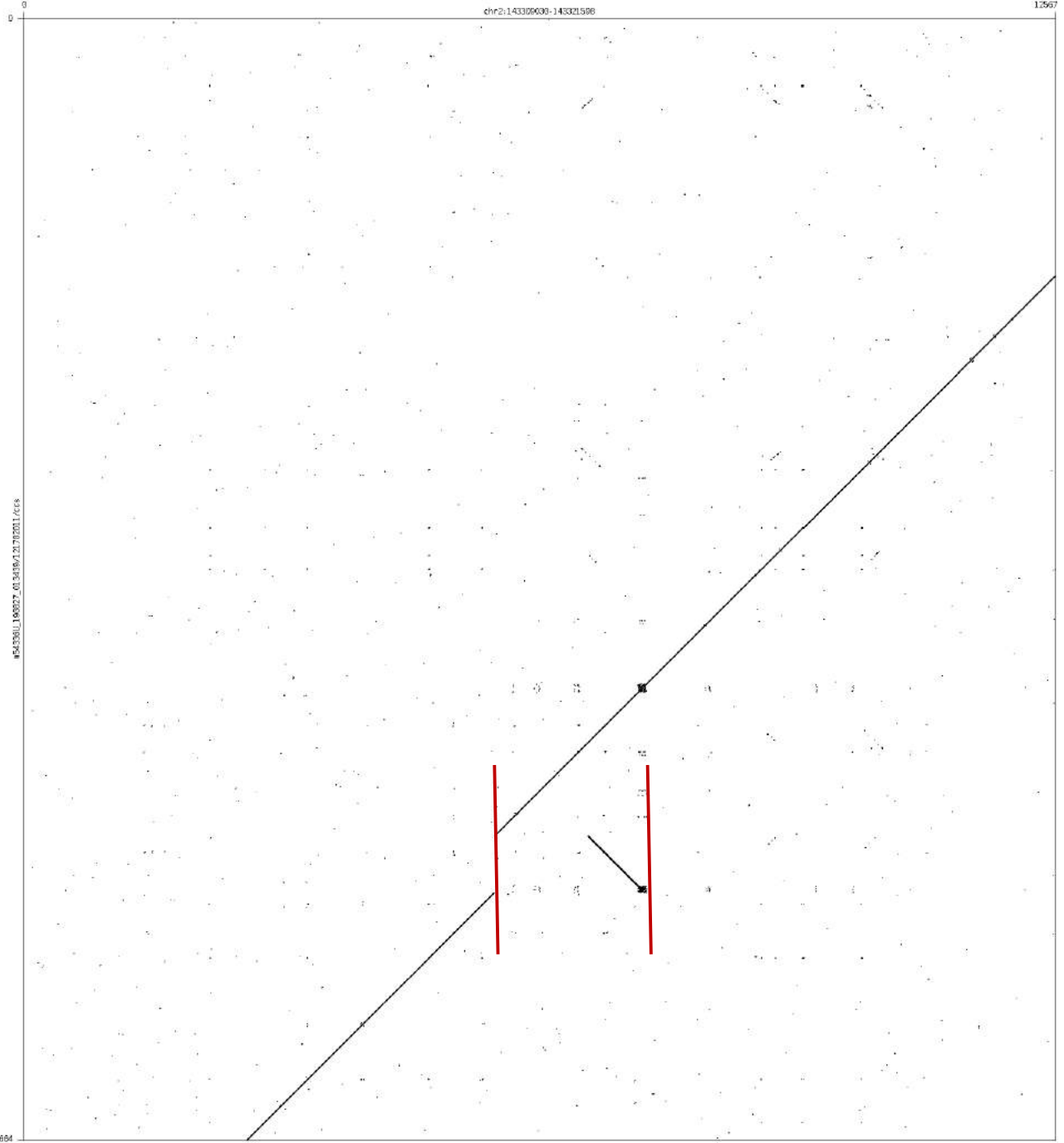




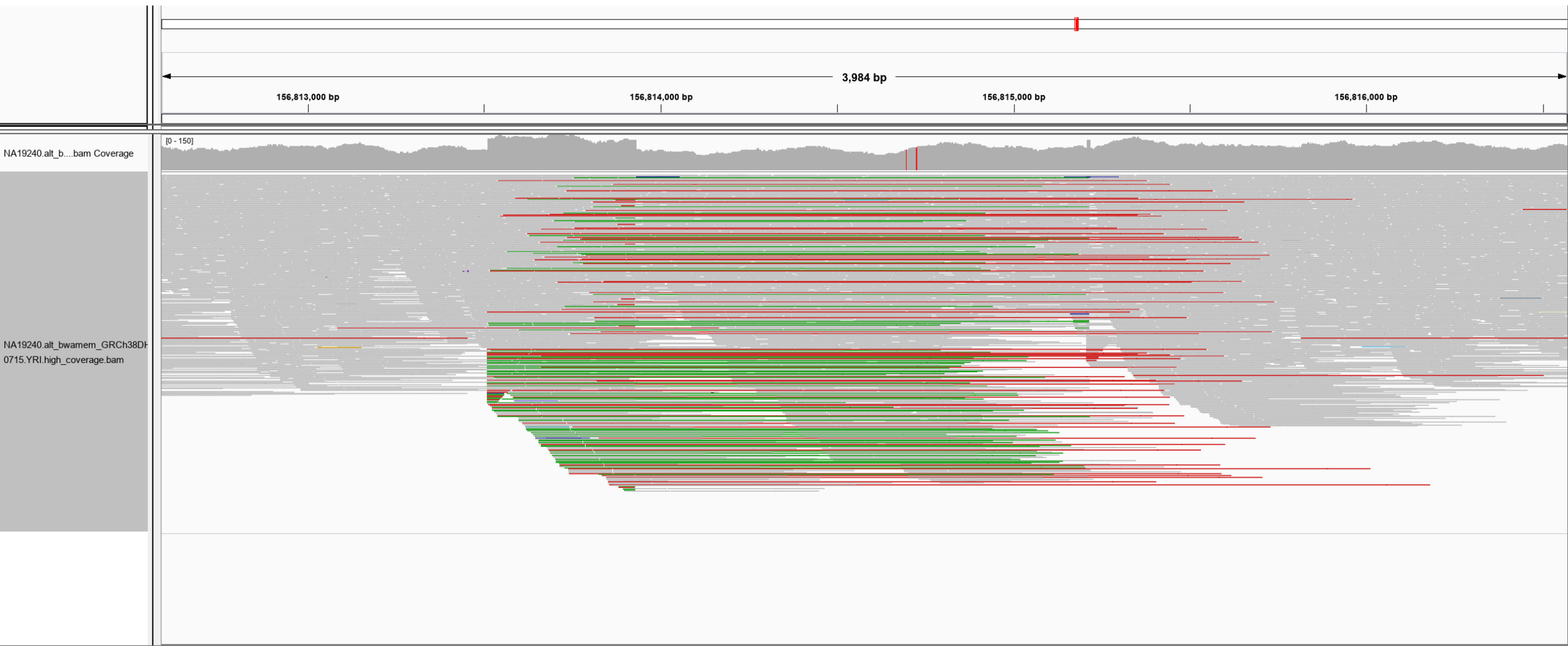
chr2:143314745-143316563

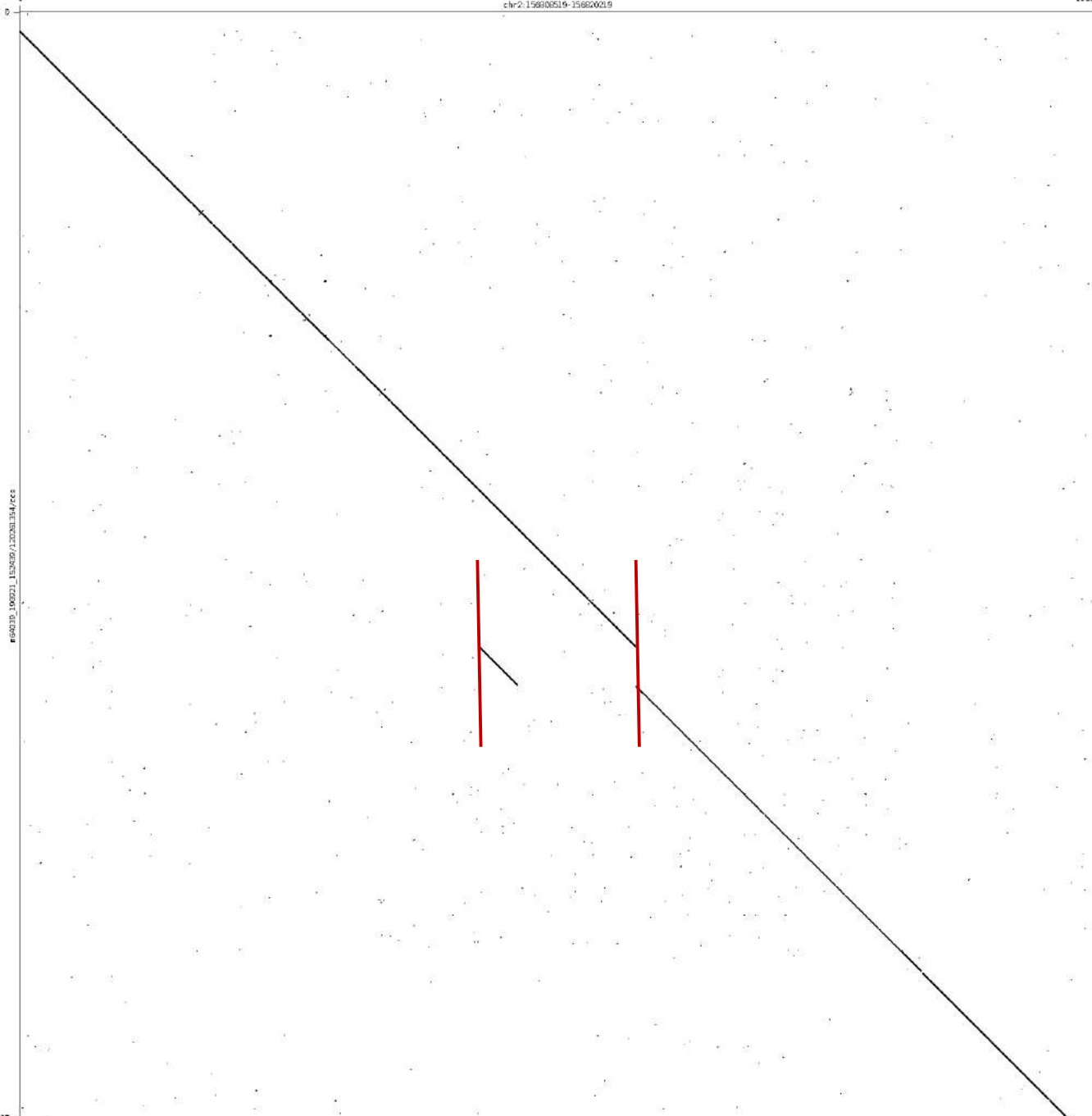


chr2:143309030-143321588 vs. rs4398119027\_010495/121702011/ces  
Zoom: 0.1  
Word length: 10 GC ratio seq1: 0.3579  
Window size: 0 GC ratio seq2: 0.3732  
Matrix: edna.mat Program: Ospard (1.40 final)



chr2:156813519-156815219

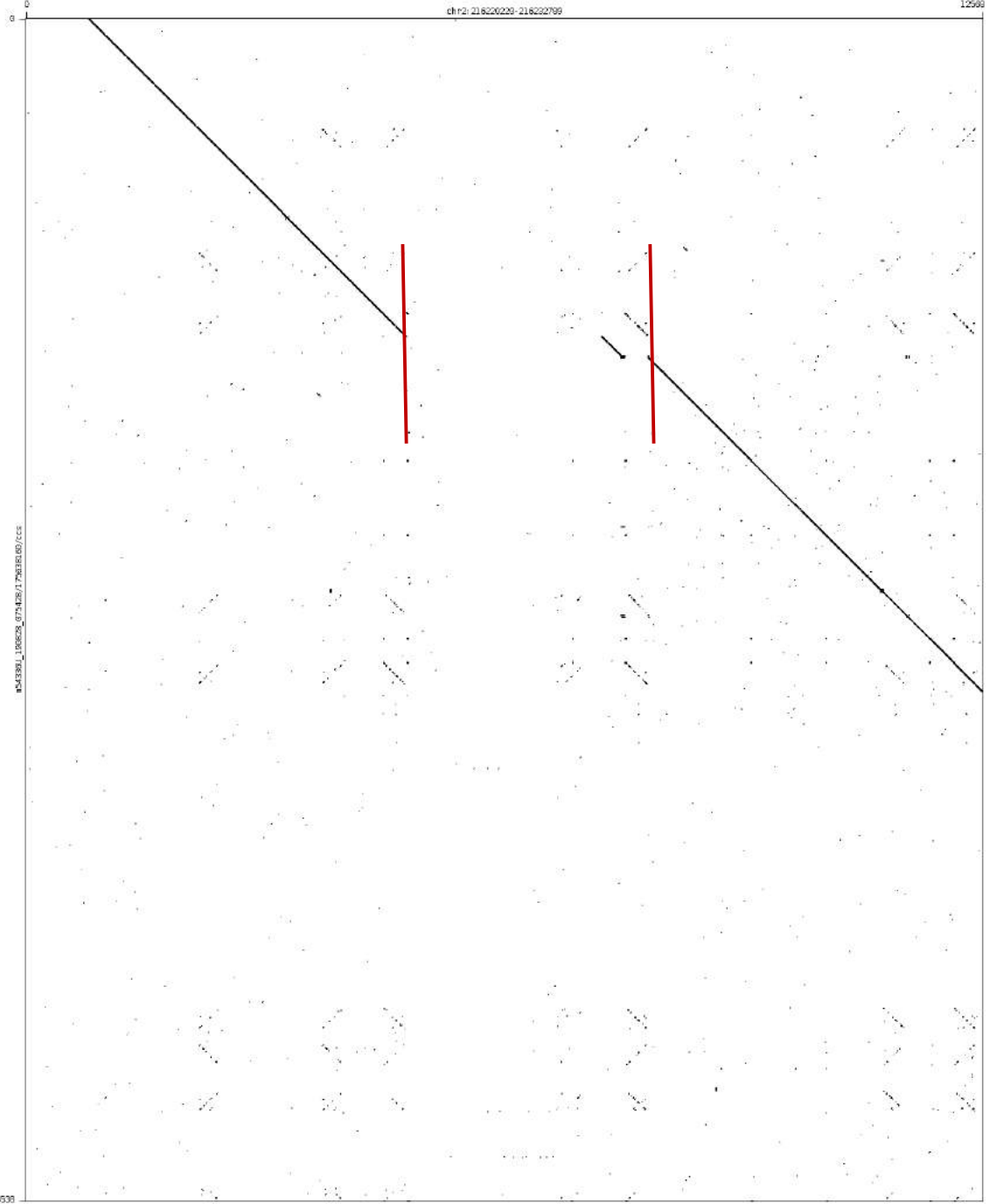






chr2:216225220-216228380

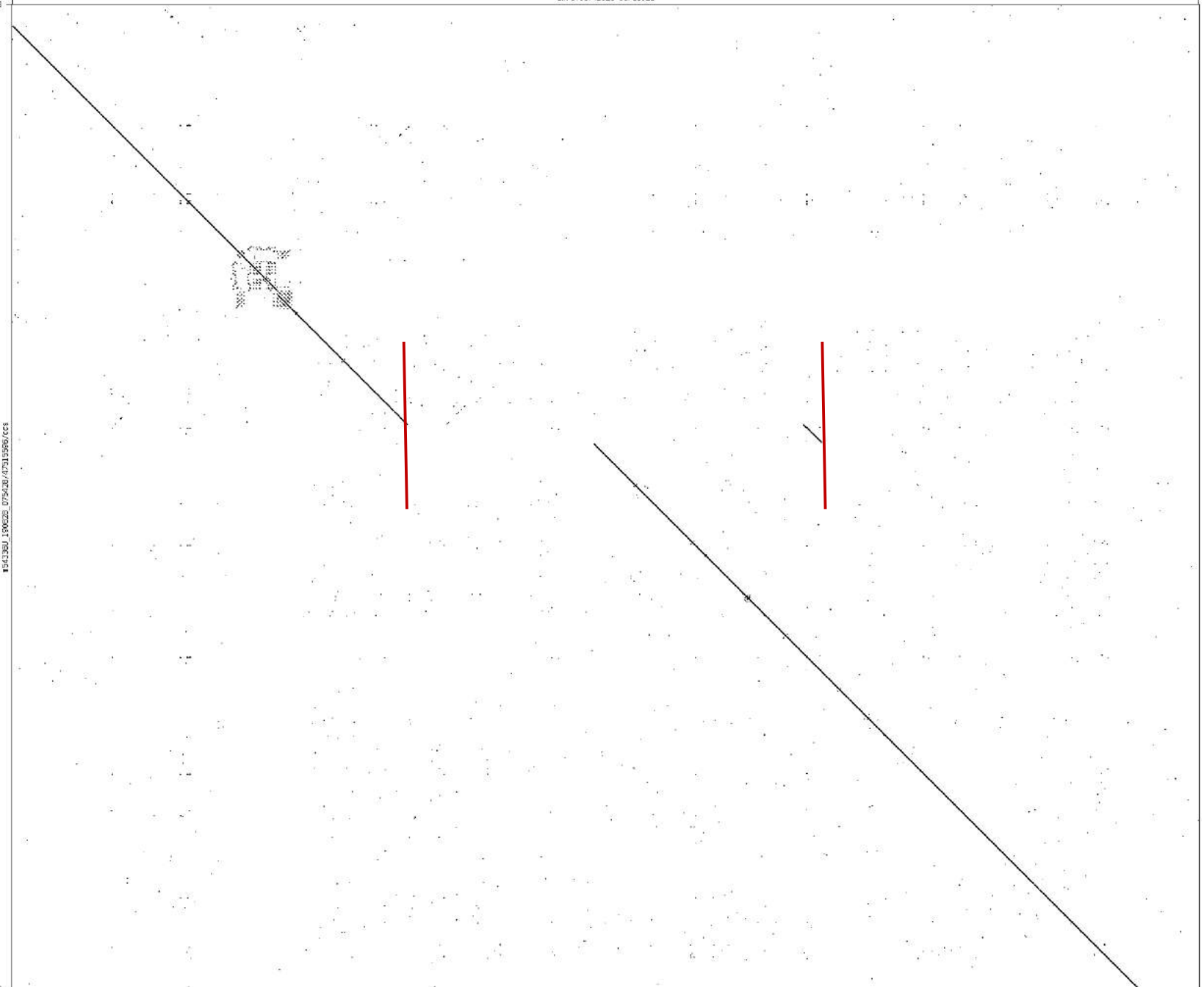




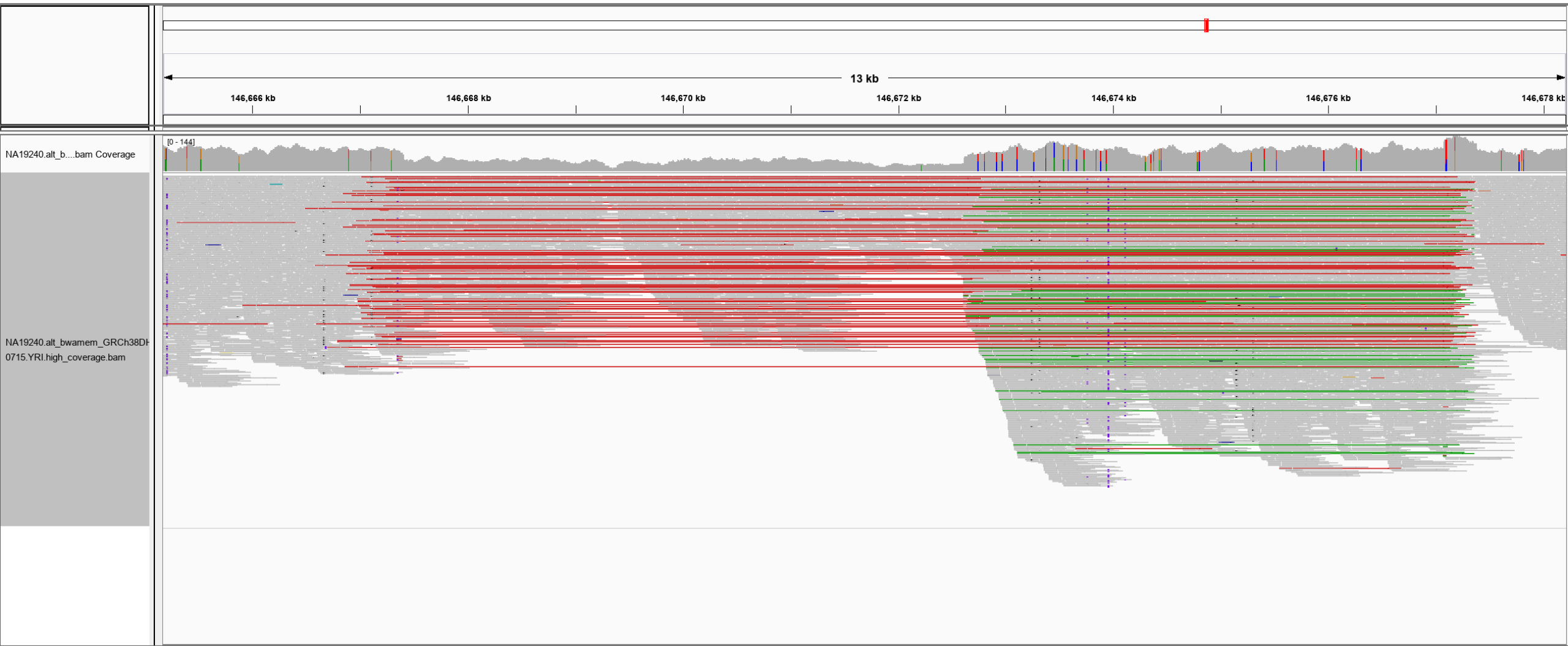
chr3:95746925-95752145



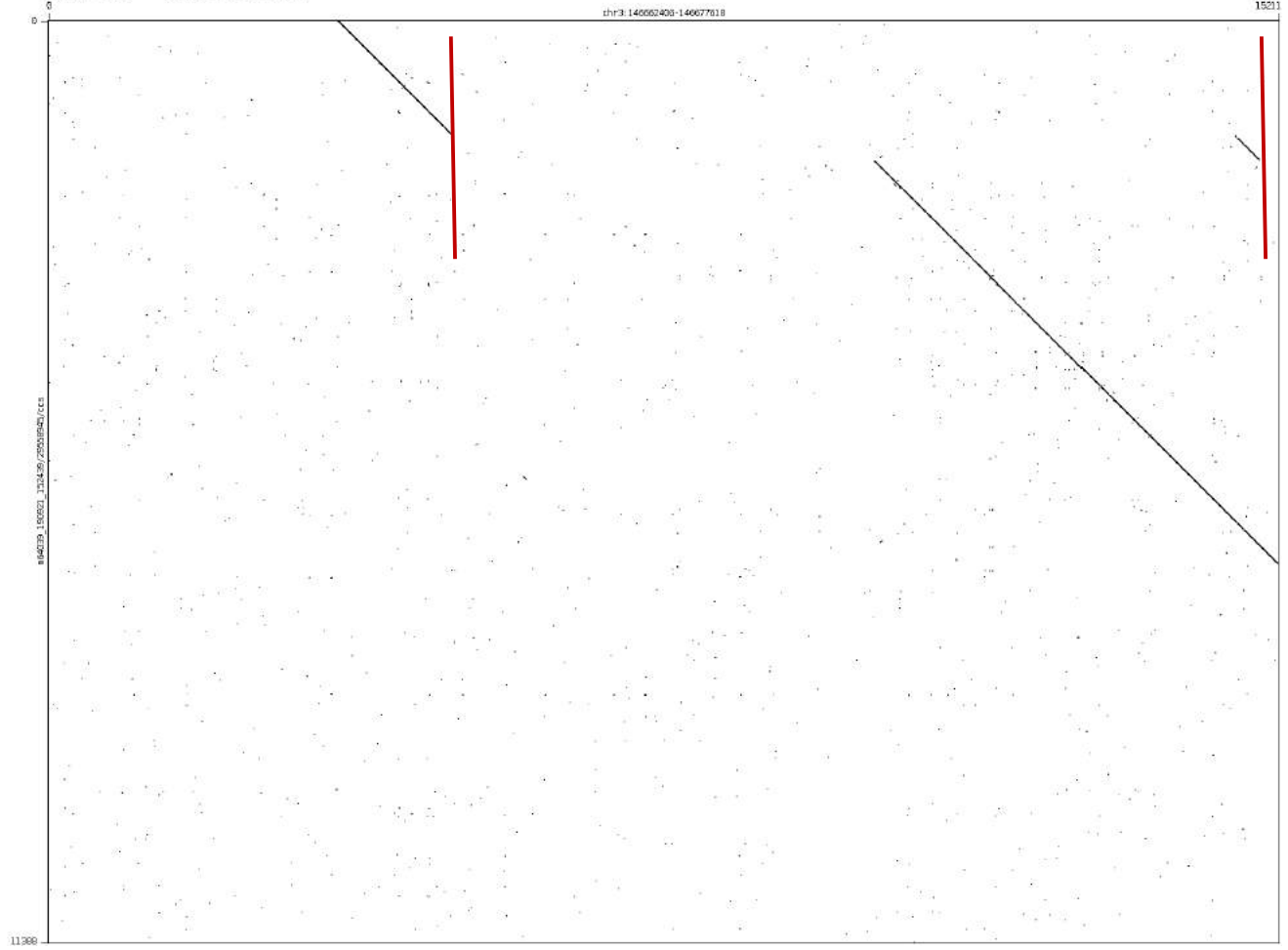
#54338U\_190028\_075428/47515996/ccc



chr3:146667406-146677351



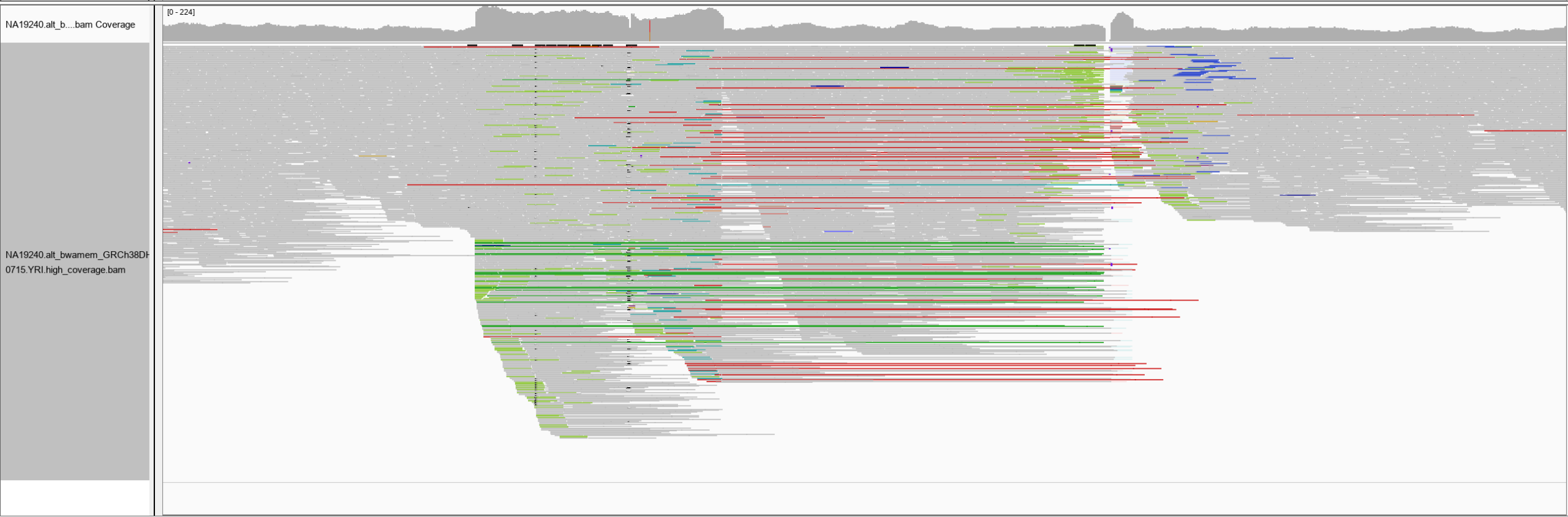
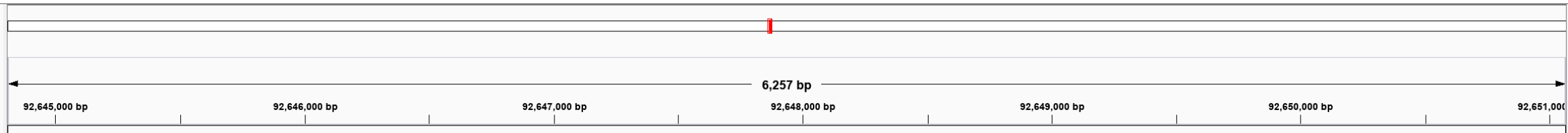
chr3:146652406-146677018 vs. s66039\_100021\_152436/25593945/ccc  
Z-score: 9.1  
Word length: 10 GC ratio seq1: 0.3405  
Window size: 0 GC ratio seq2: 0.3227  
Matrix: edna.mat Program: Gepard (1.40 final)



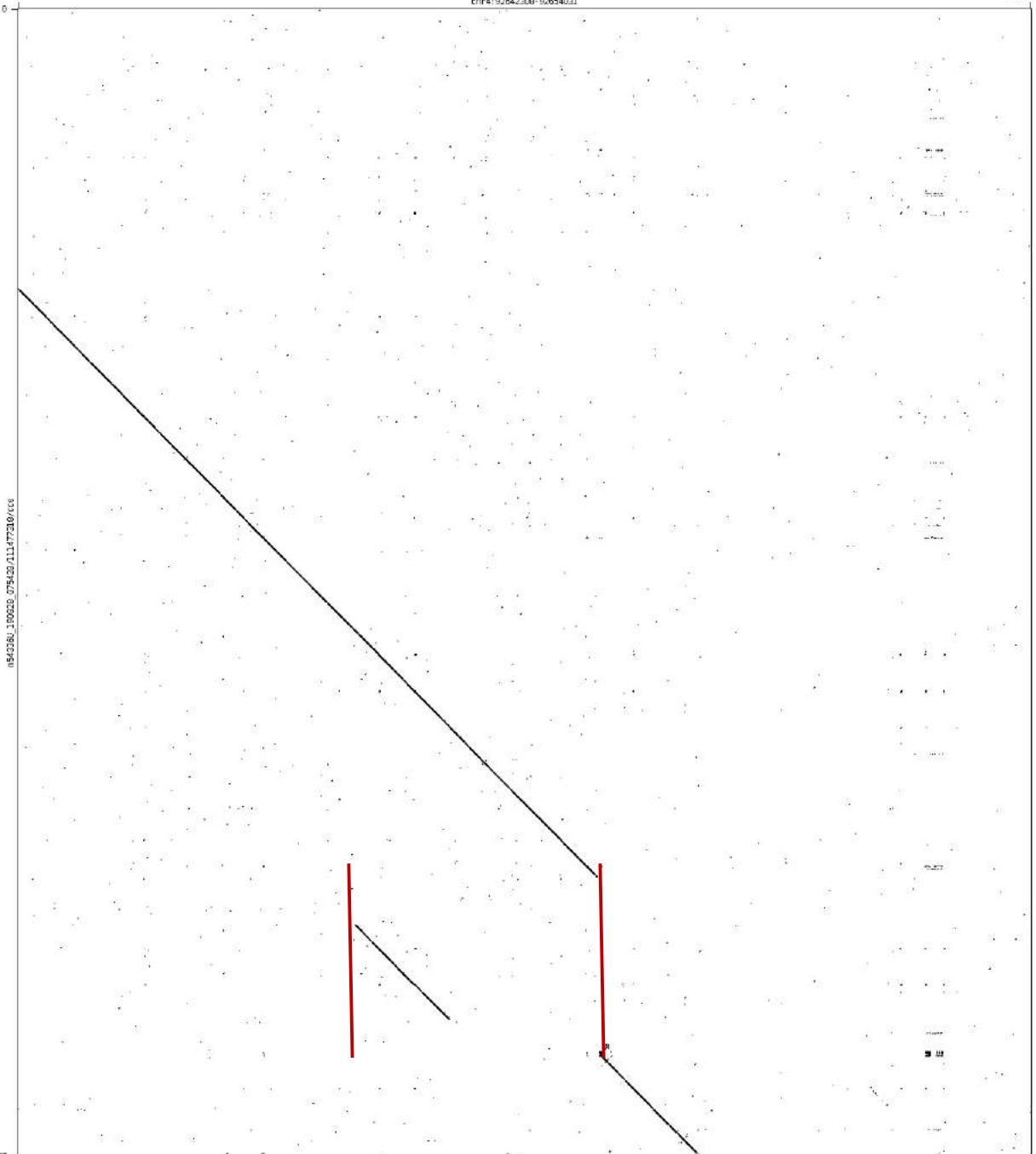
0  
11388

15211

chr4: 92646201-92649031



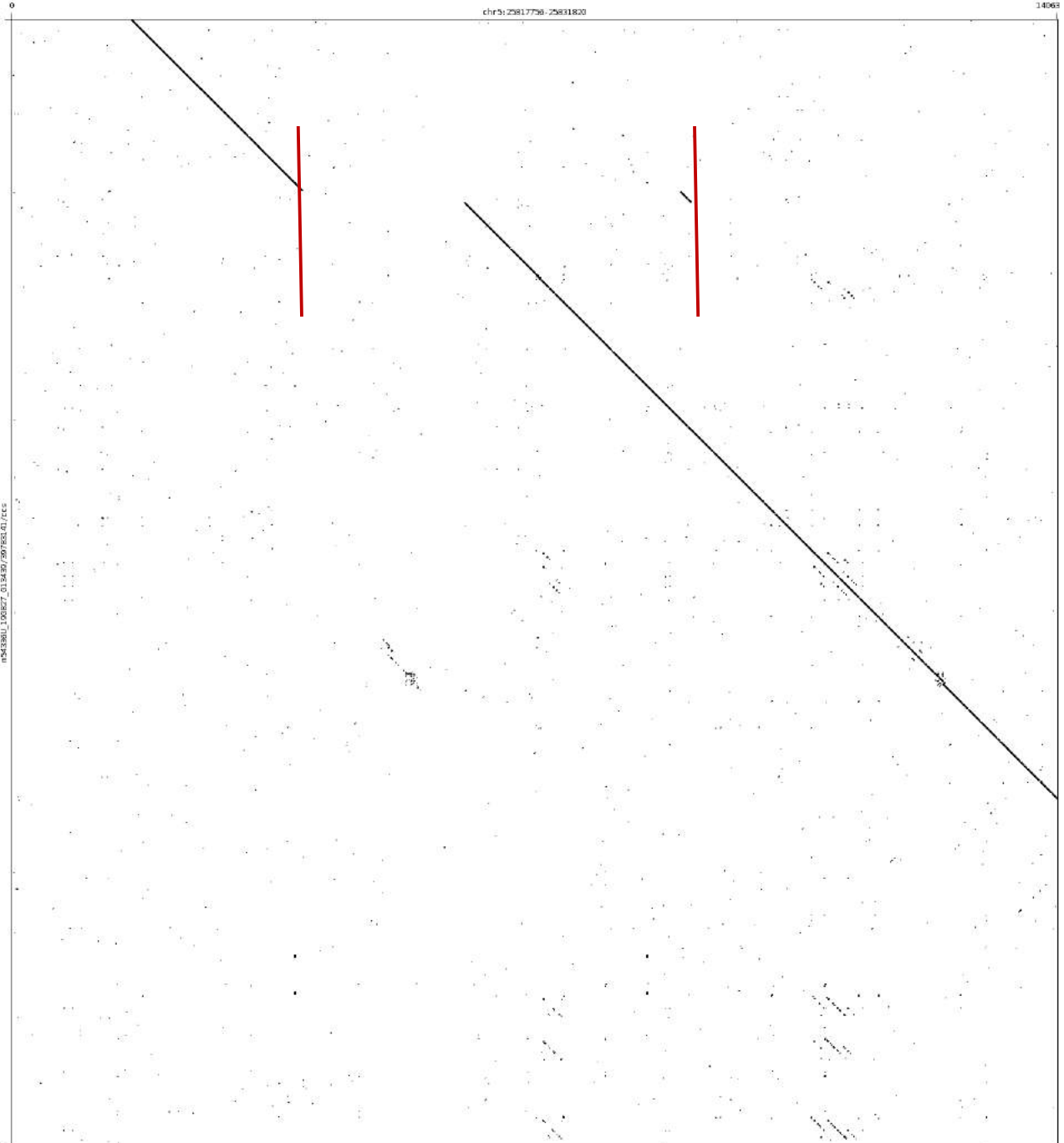
n543380\_100828\_075426/111477318/ccc



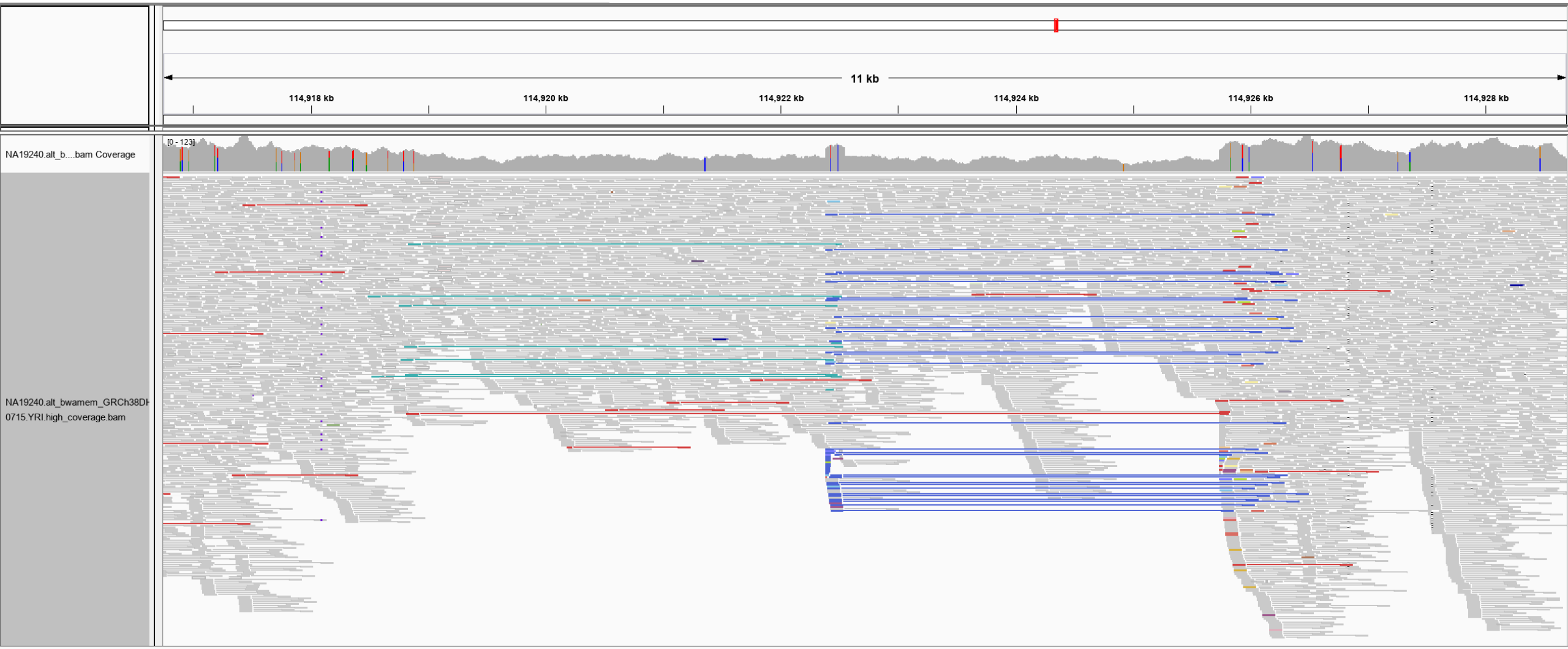


chr5:25821671-25826900

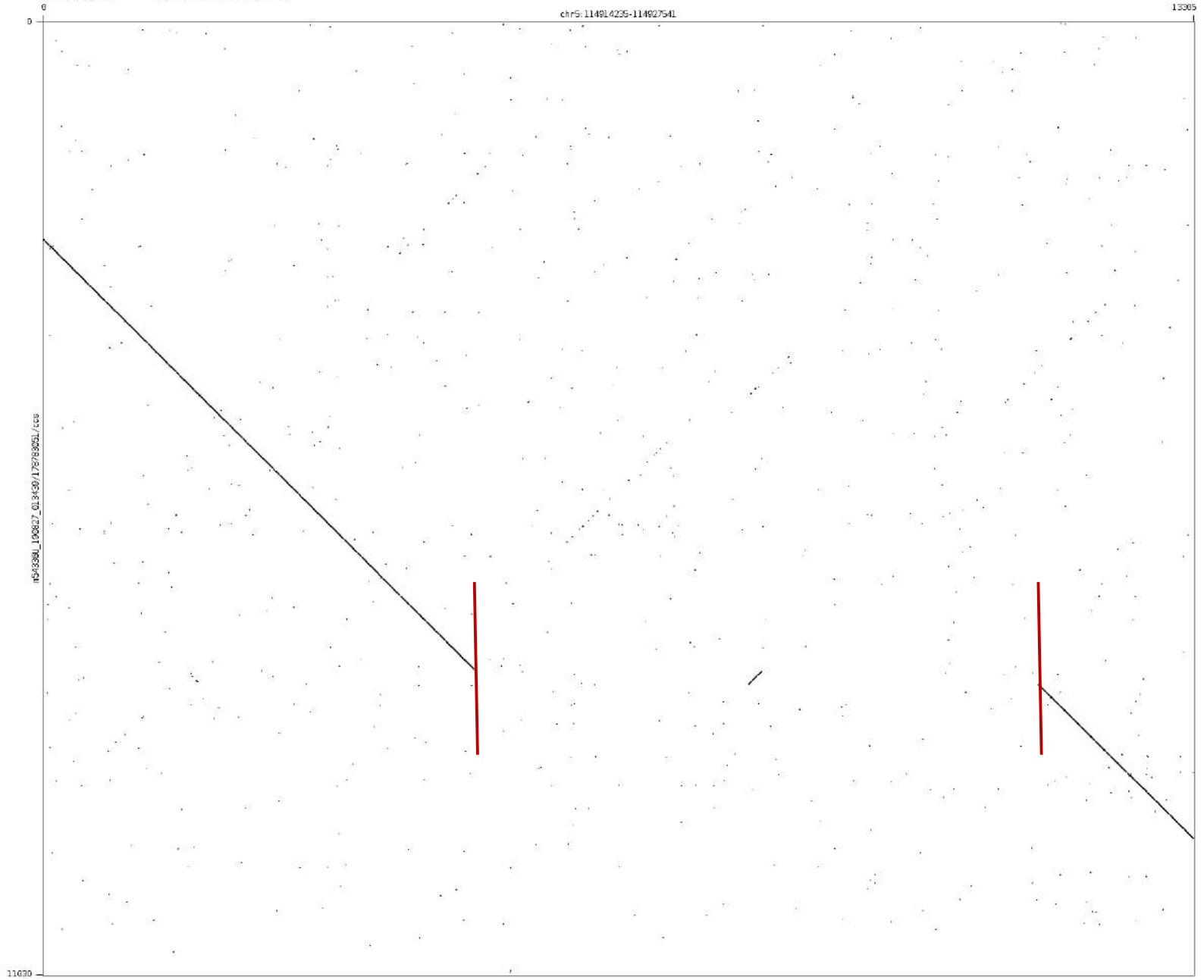




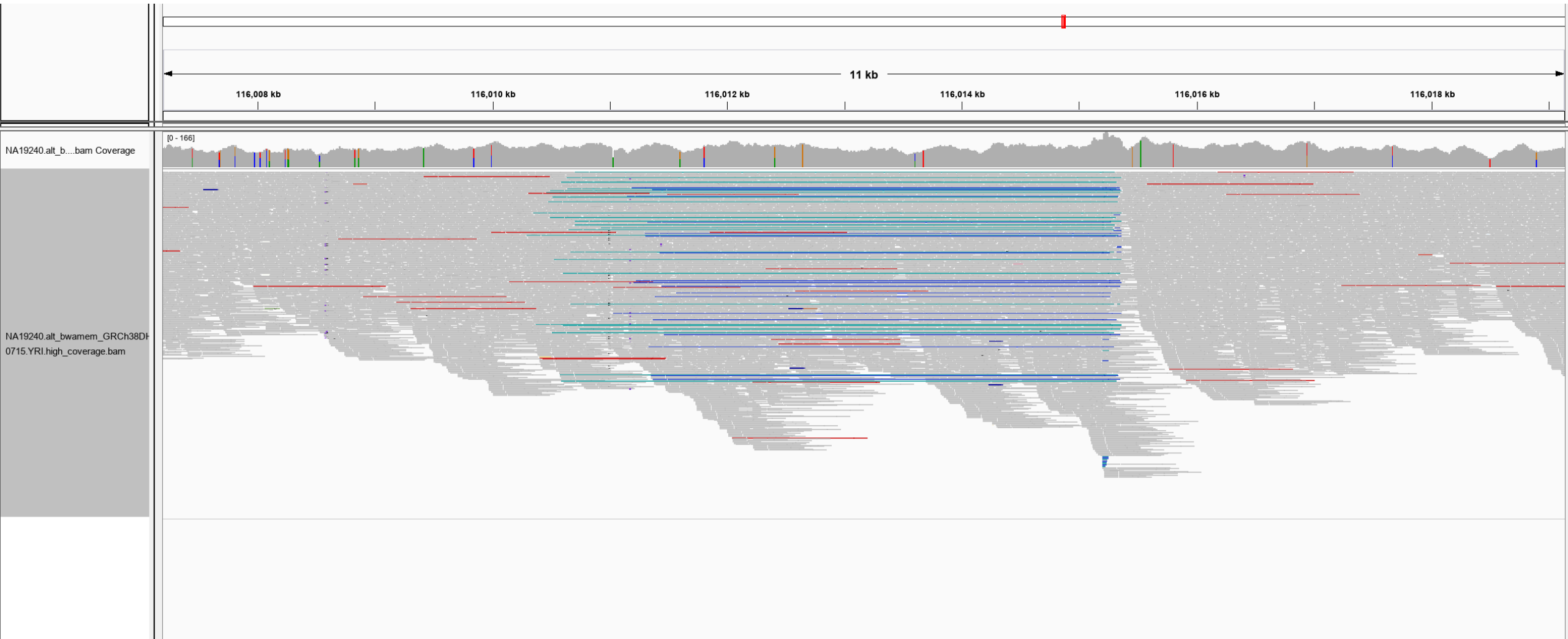
chr5:114919235-114925727

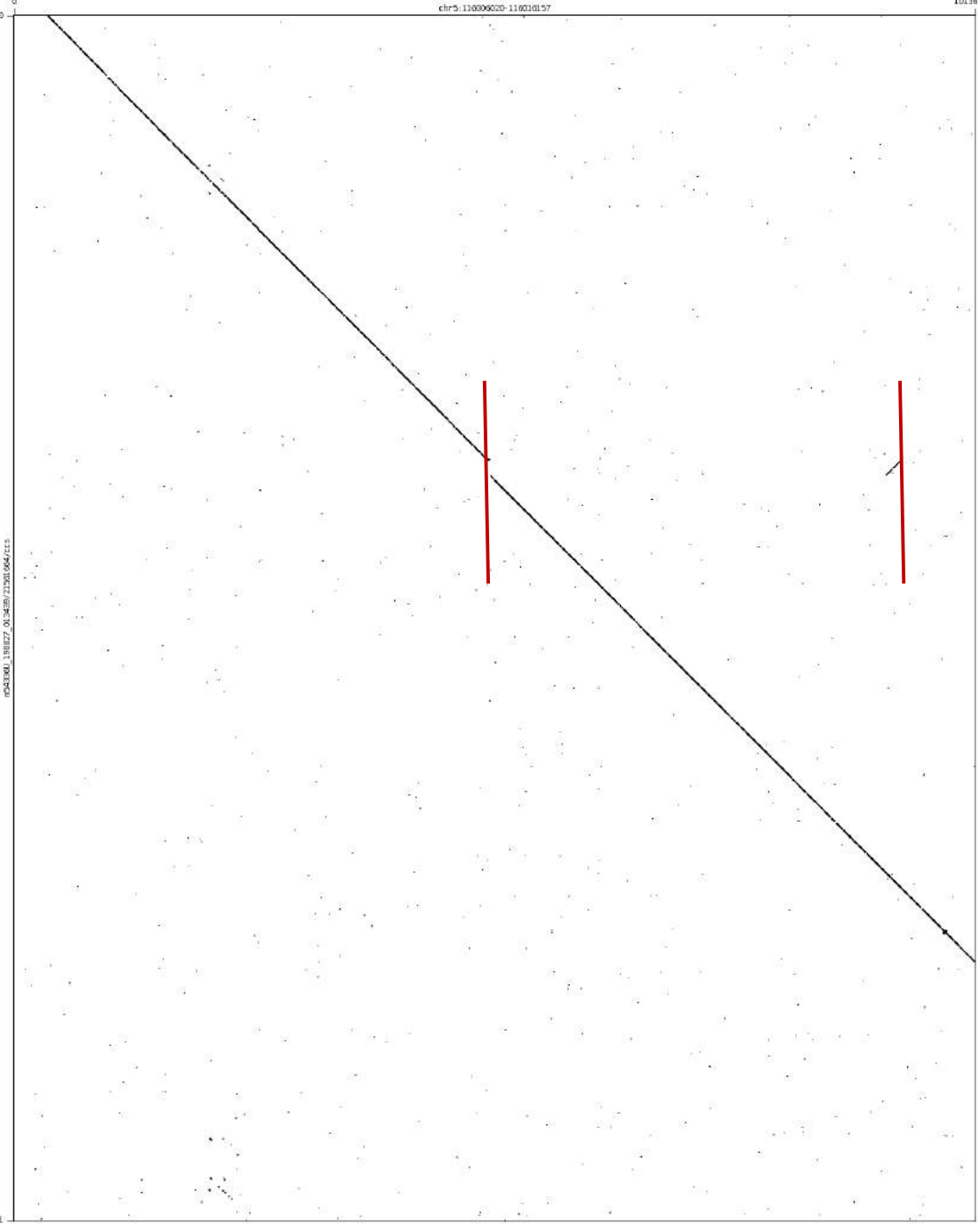


chr5:114914235-114927541 vs. n543380\_100827\_013439/179783051.ccs  
Zoom: 8 : 1  
Word length: 10 GC ratio seq1: 0.3634  
Window size: 0 GC ratio seq2: 0.3793  
Matrix: edna.mat Program: Gepard (1.40 final)



chr5:116011020-116015362

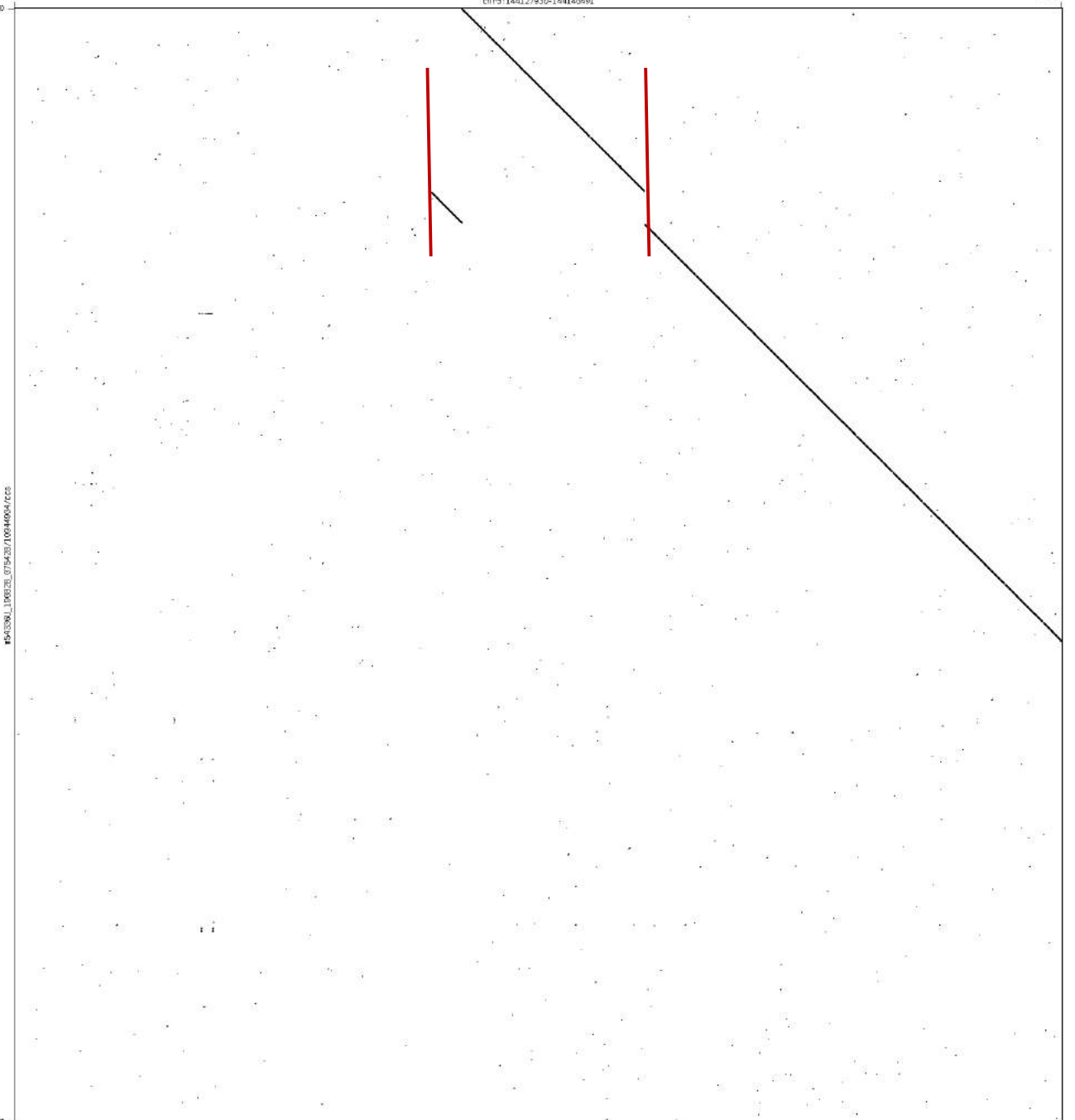




chr5:144132930-144135491

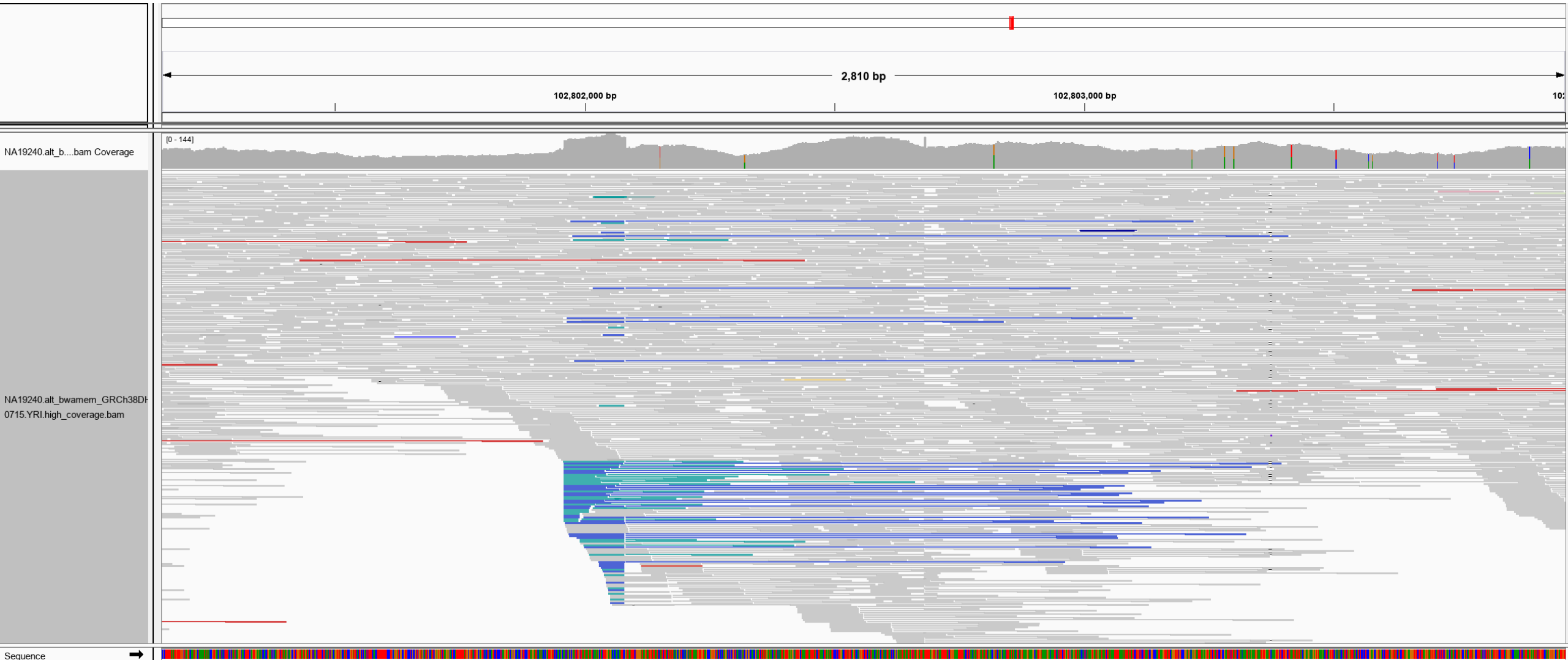


chr5:144127930-144140401 vs. #543390\_100828\_075428/10044904/ccs  
Zone: 0 1  
k-mer length: 18 GC ratio seq1: 0.3758  
Window size: 0 GC ratio seq2: 0.3553  
Matrix: edna.rot Program: Gepar2 (1.40 final)

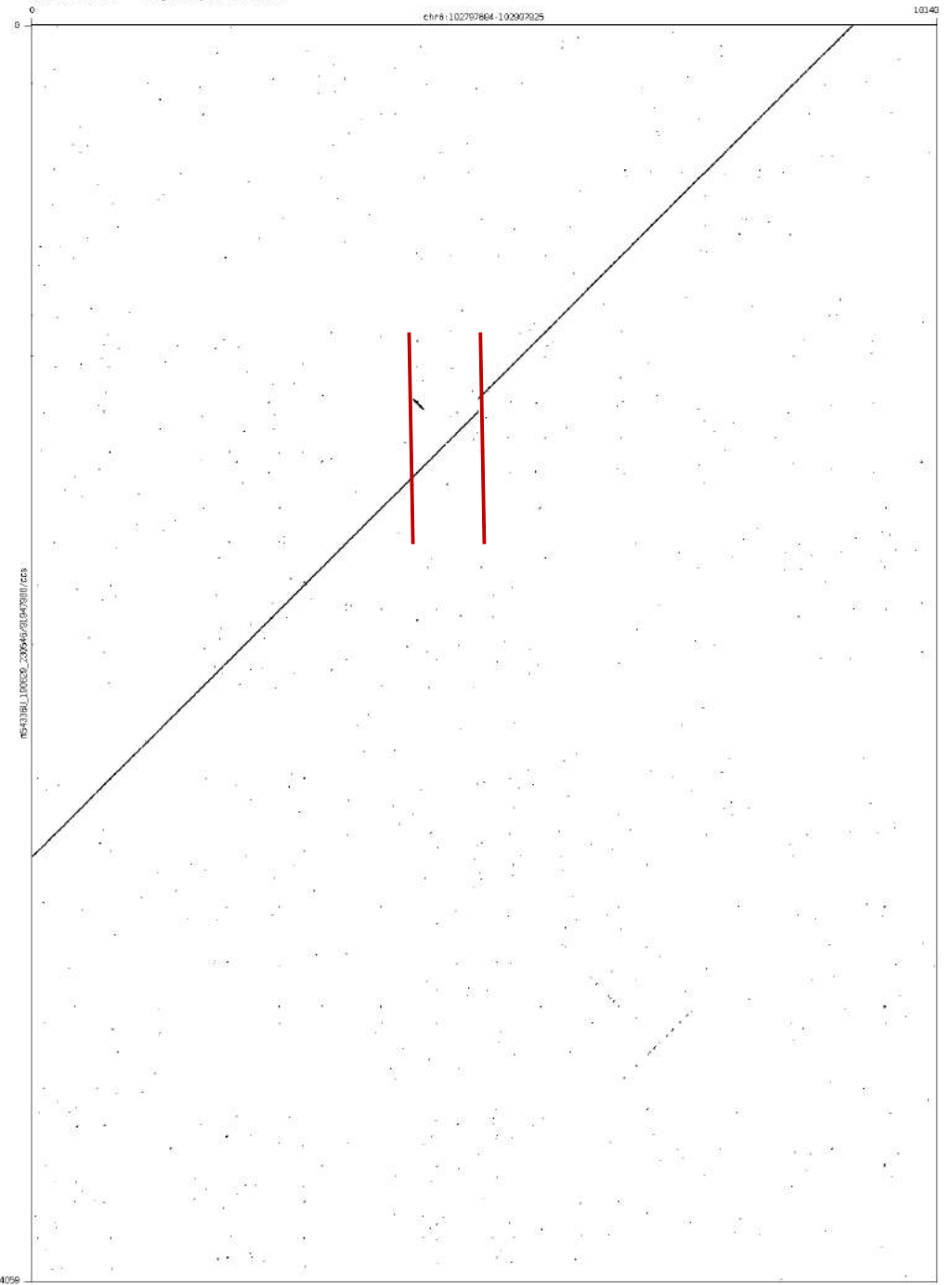




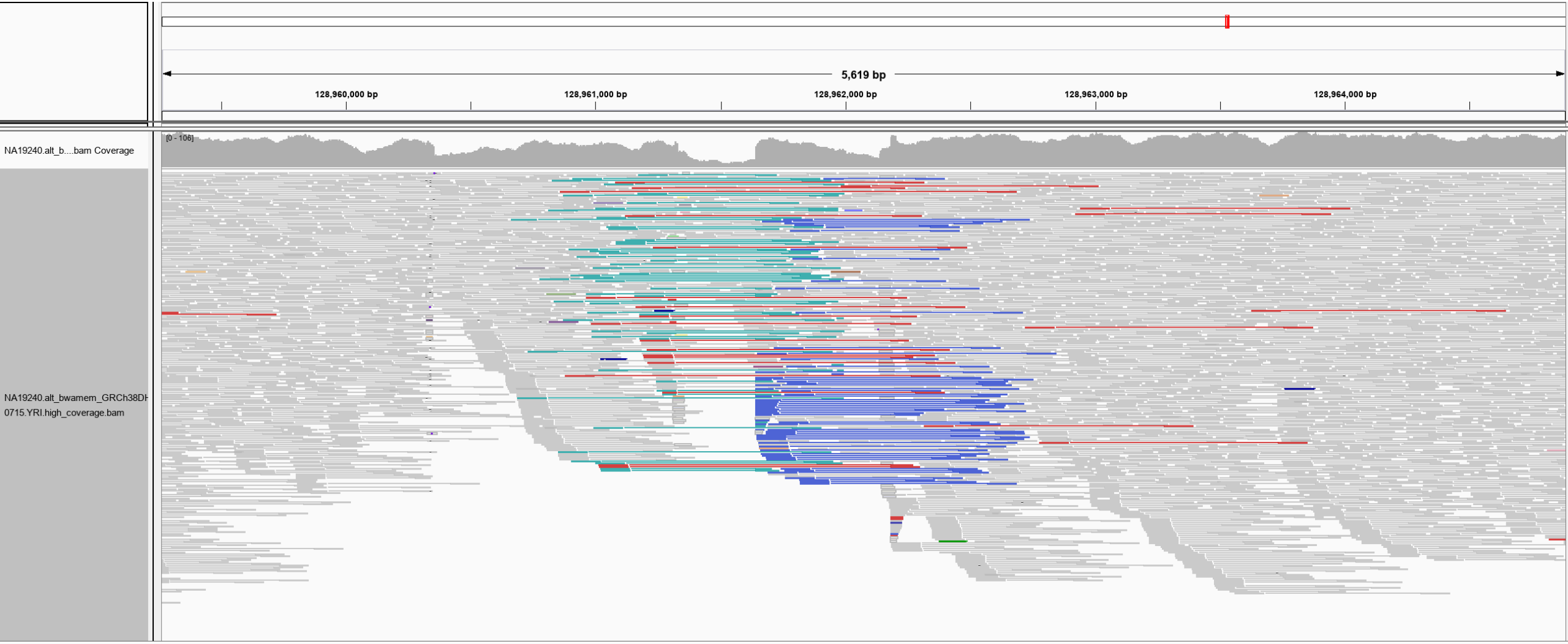
chr6:102801951-102802684



chr6:102707994-102907925 vs. #542000\_199220\_220546/91847800/ccs  
Zink: 6 1 1  
Word length: 10 GC ratio seq1: 0.3750  
Window size: 0 GC ratio seq2: 0.2611  
Matrix: edna.rot Program: cspord [1.40 final]



chr6:128961308-128962212



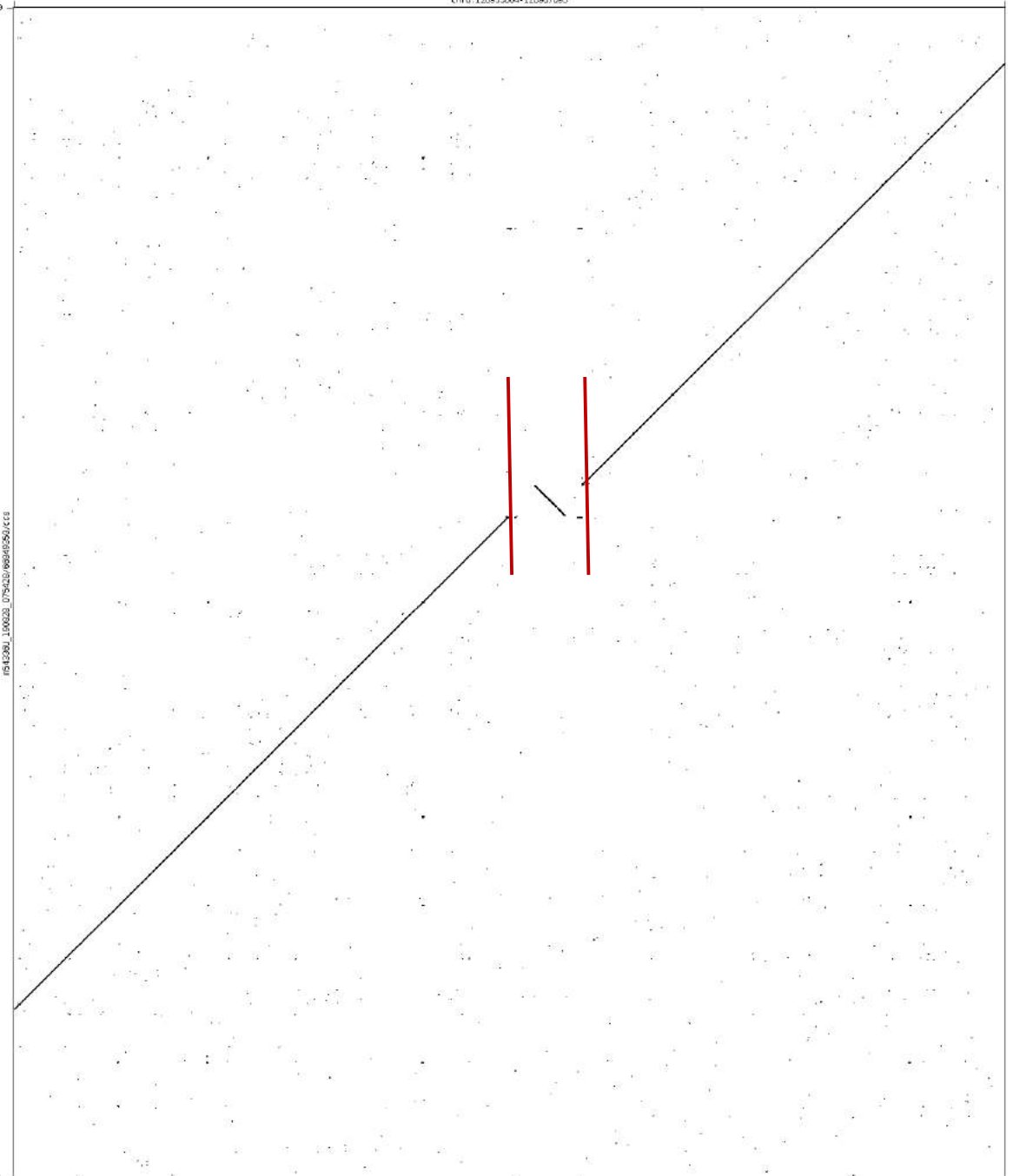
chr8:128955004-128967063 vs. rs43001190030\_075420/08849550/ccc  
Zone: 0 1 GC ratio seq1: 0.3555  
Word length: 10 GC ratio seq2: 0.3240  
Window size: 0  
Matrix: edno.mat Program: Gspard (1.40 final)  
0

chr8:128955004-128967063

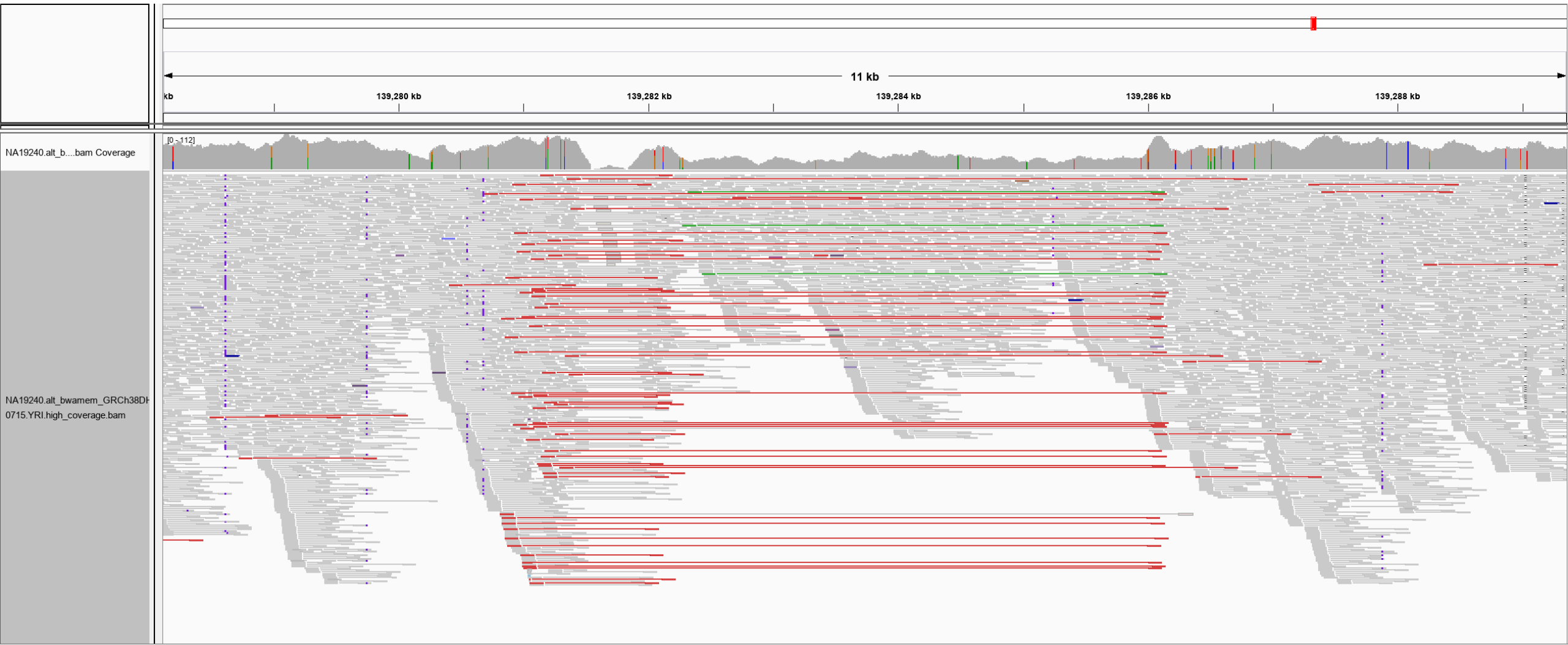
11498

rs43001190030\_075420/08849550/ccc

13961



chr6:139281530-139285938



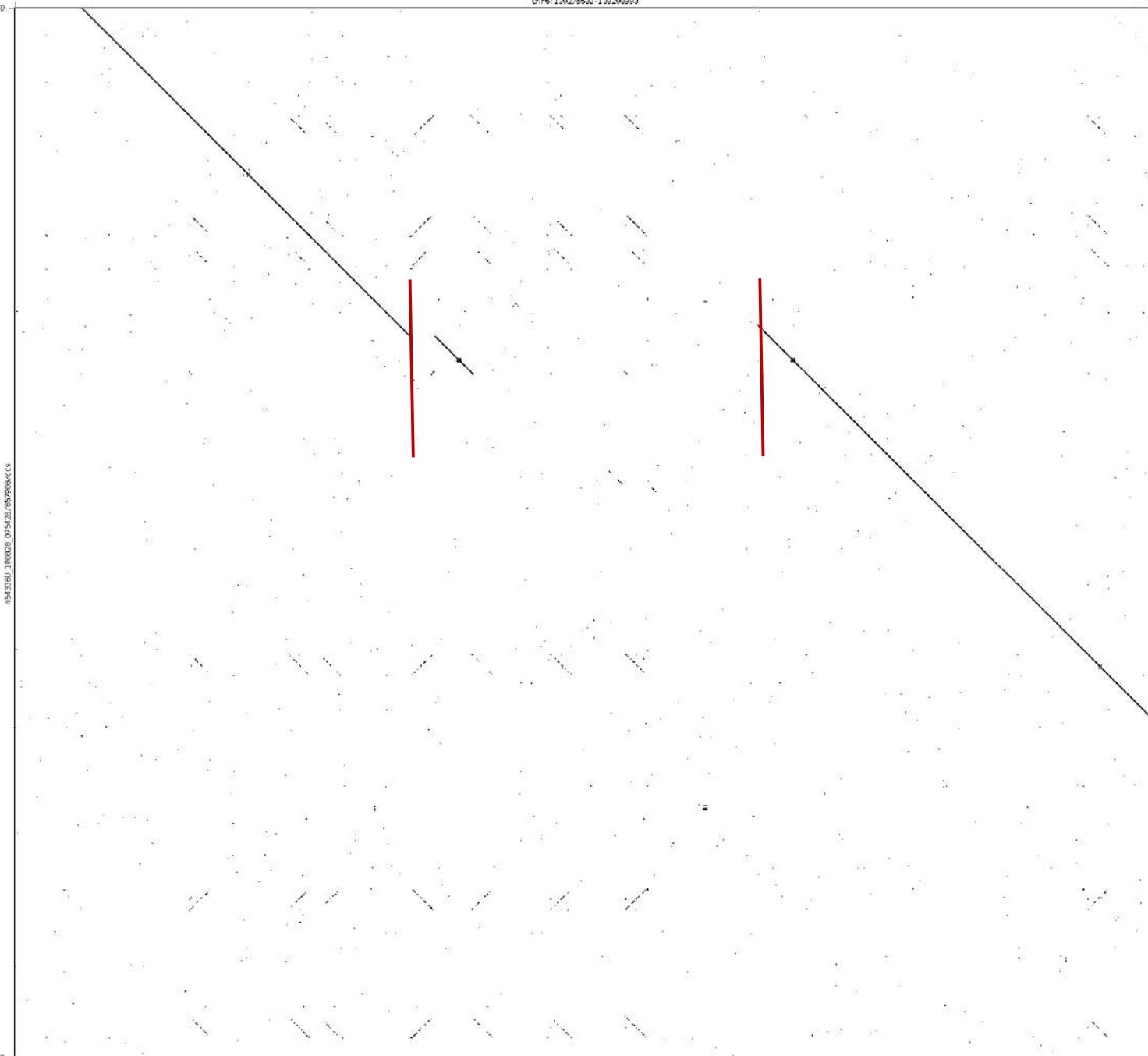
chr6:130270530-130290000 vs. n543301\_100028\_075428/037906/ccs  
Zoom: 8 : 1 GC ratio seq1: 0.4155  
Read length: 10 GC ratio seq2: 0.4114  
Window size: 0  
Matrix: edna.mat Program: cgpard (1.40 final)

chr6:130270530-130290000

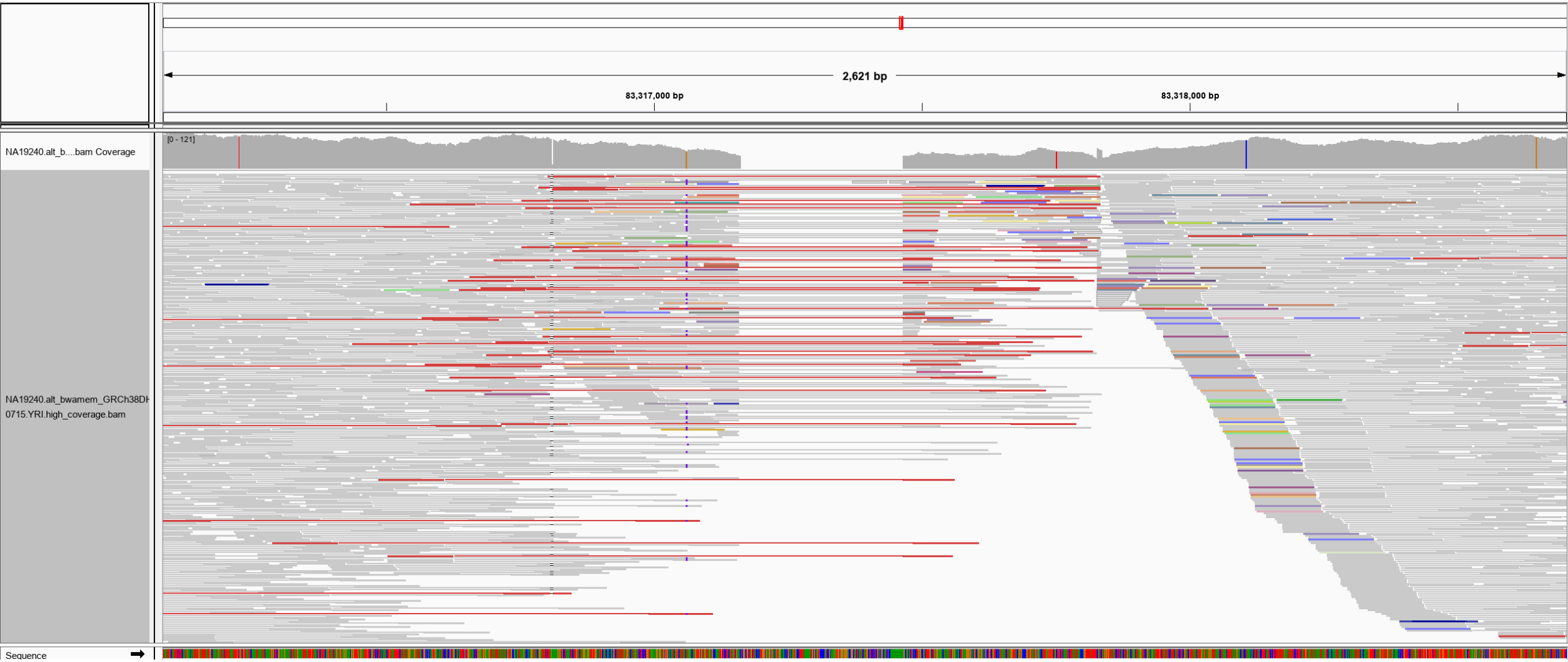
14462

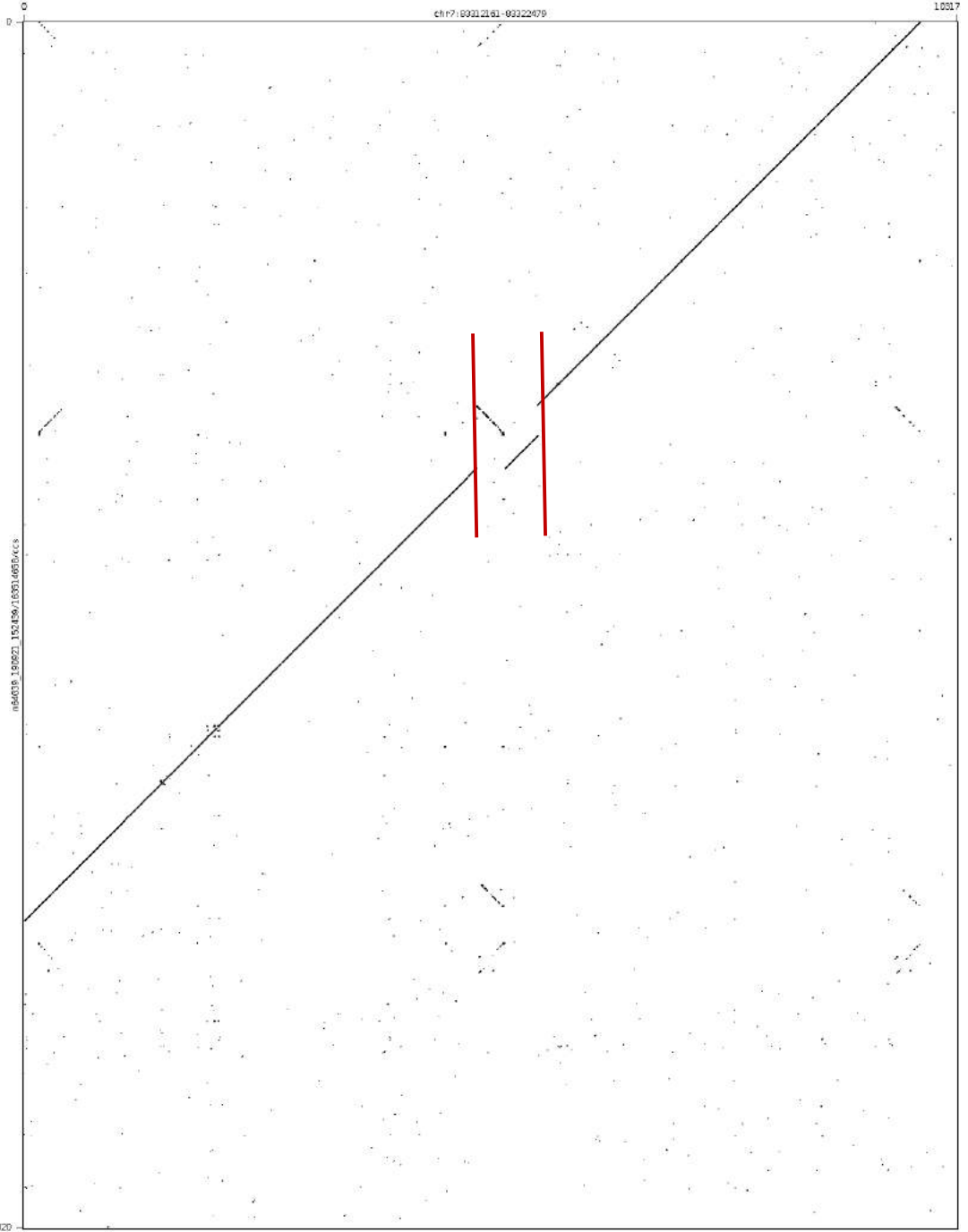
n543301\_100028\_075428/037906/ccs

13328



chr7:83317161-83318171

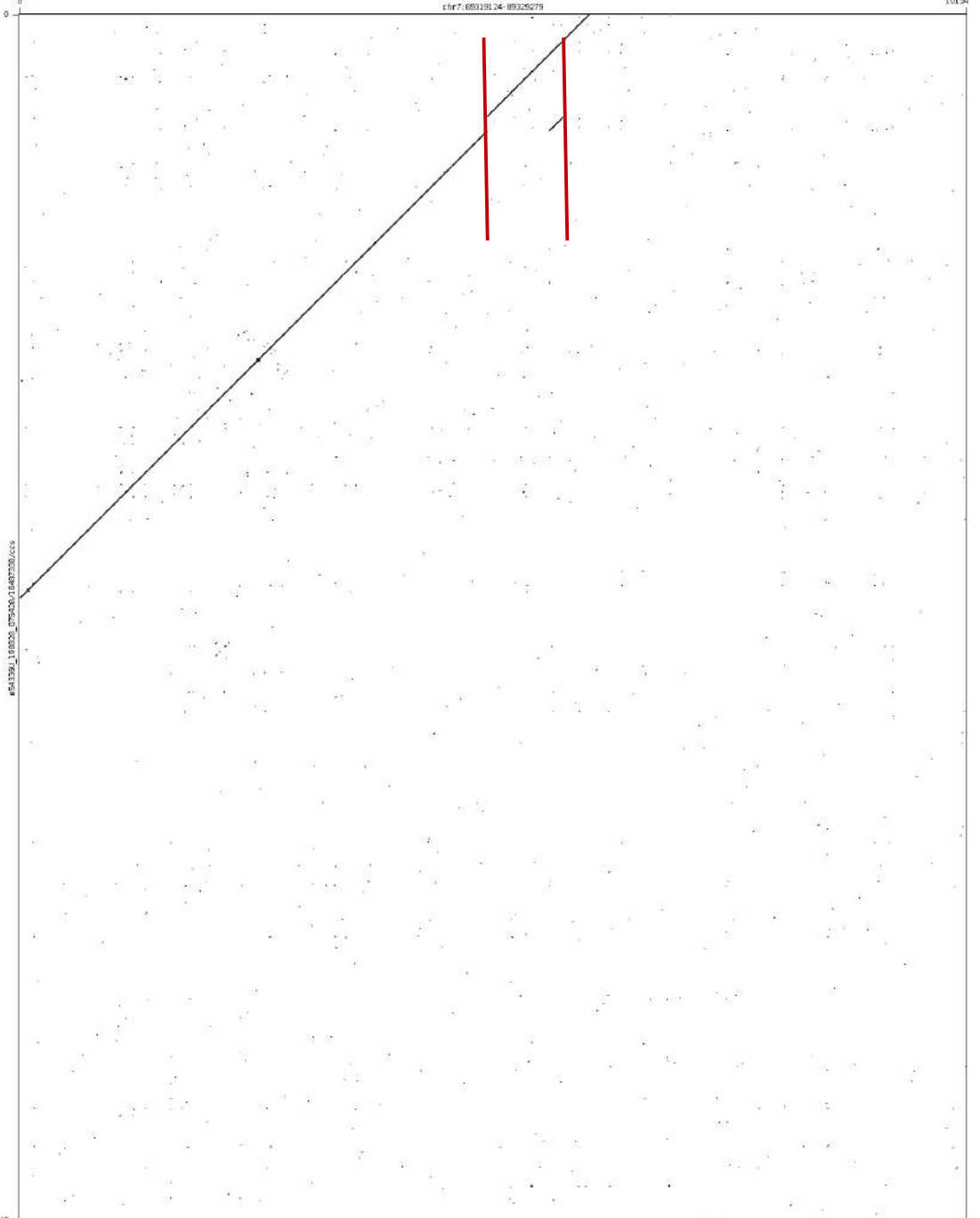




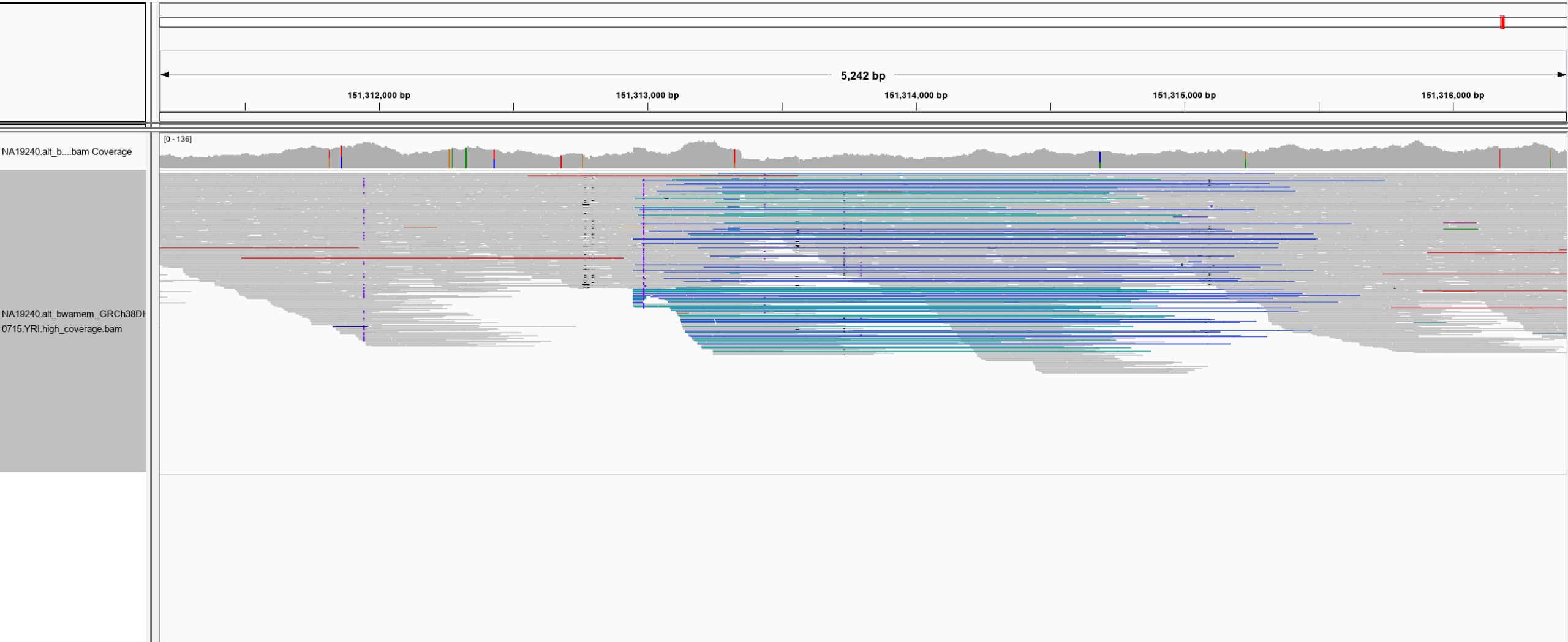


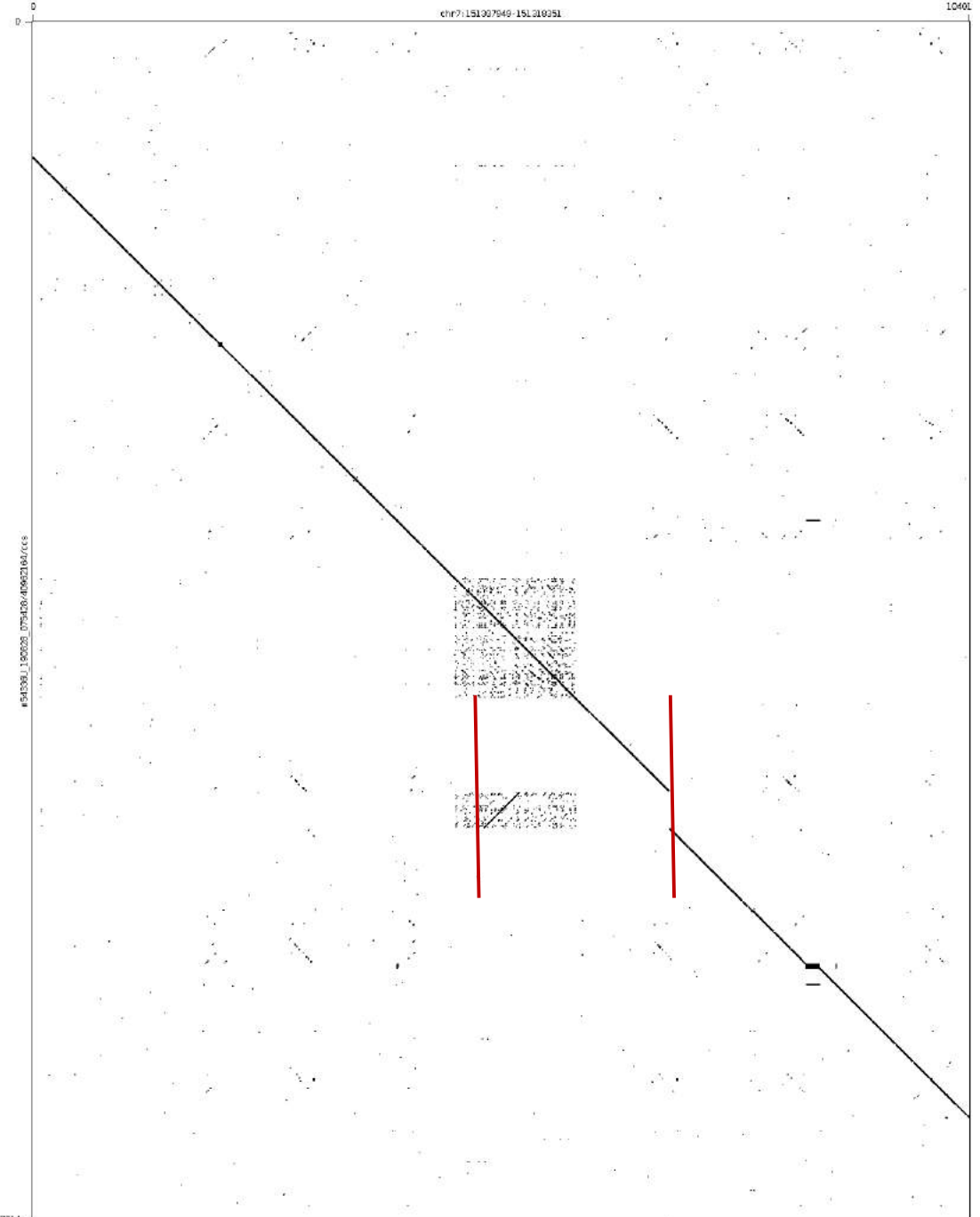
chr7: 89324124-89324962



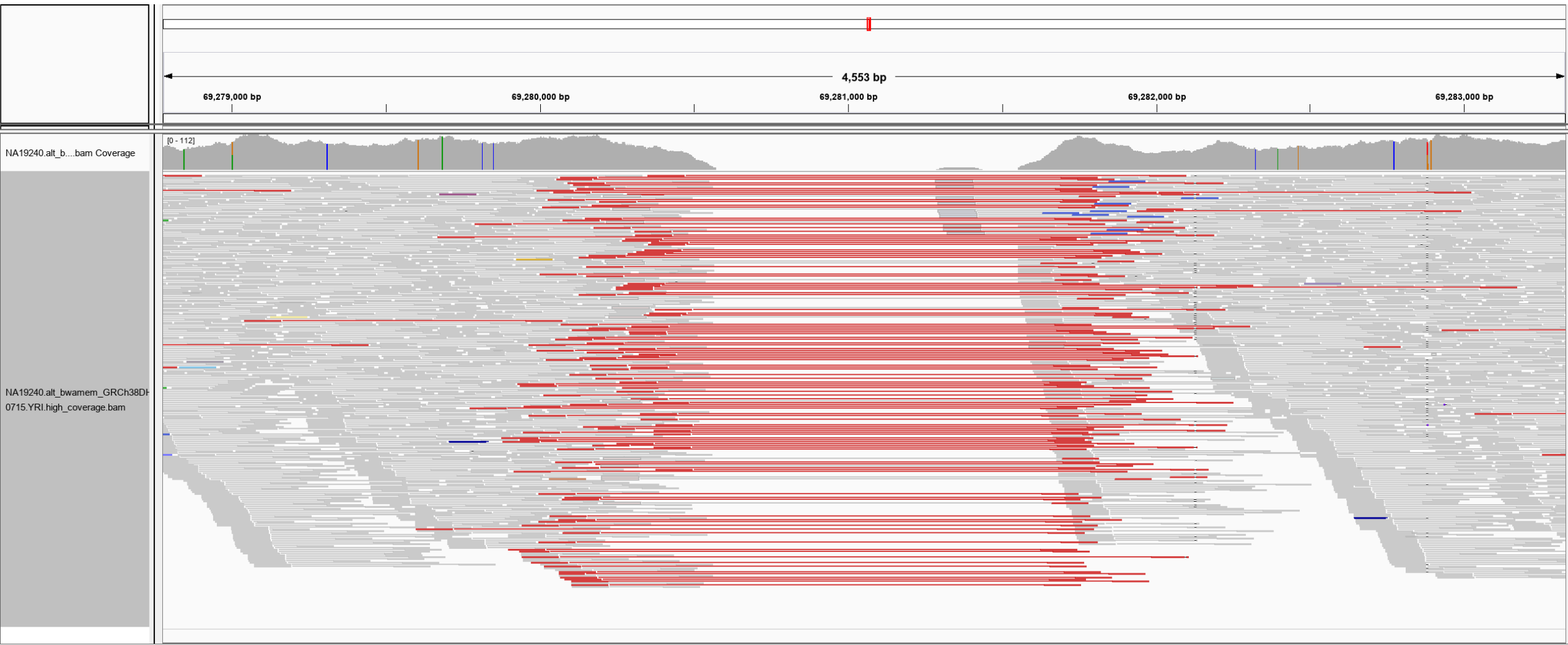


chr7:151312949-151314989

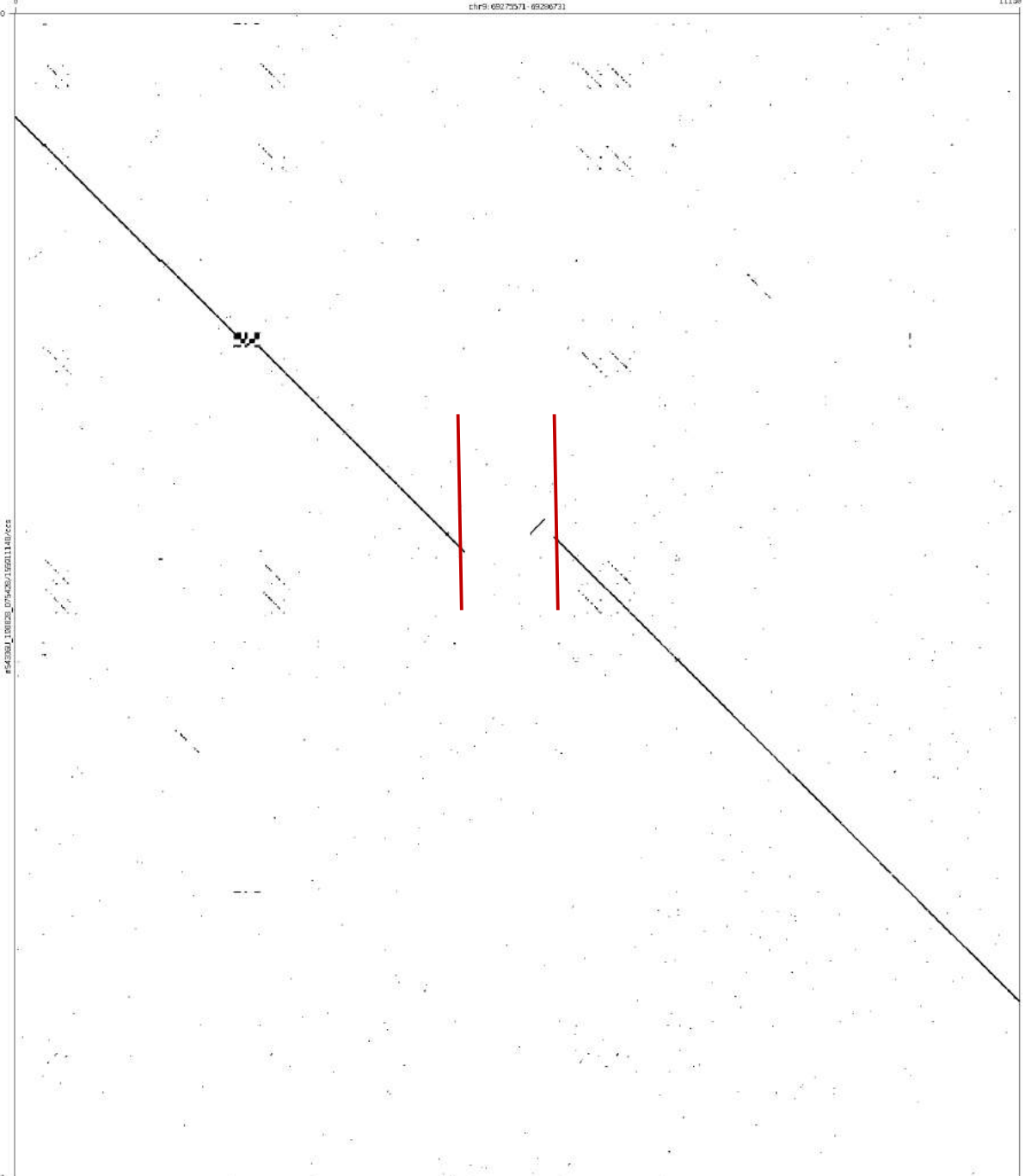




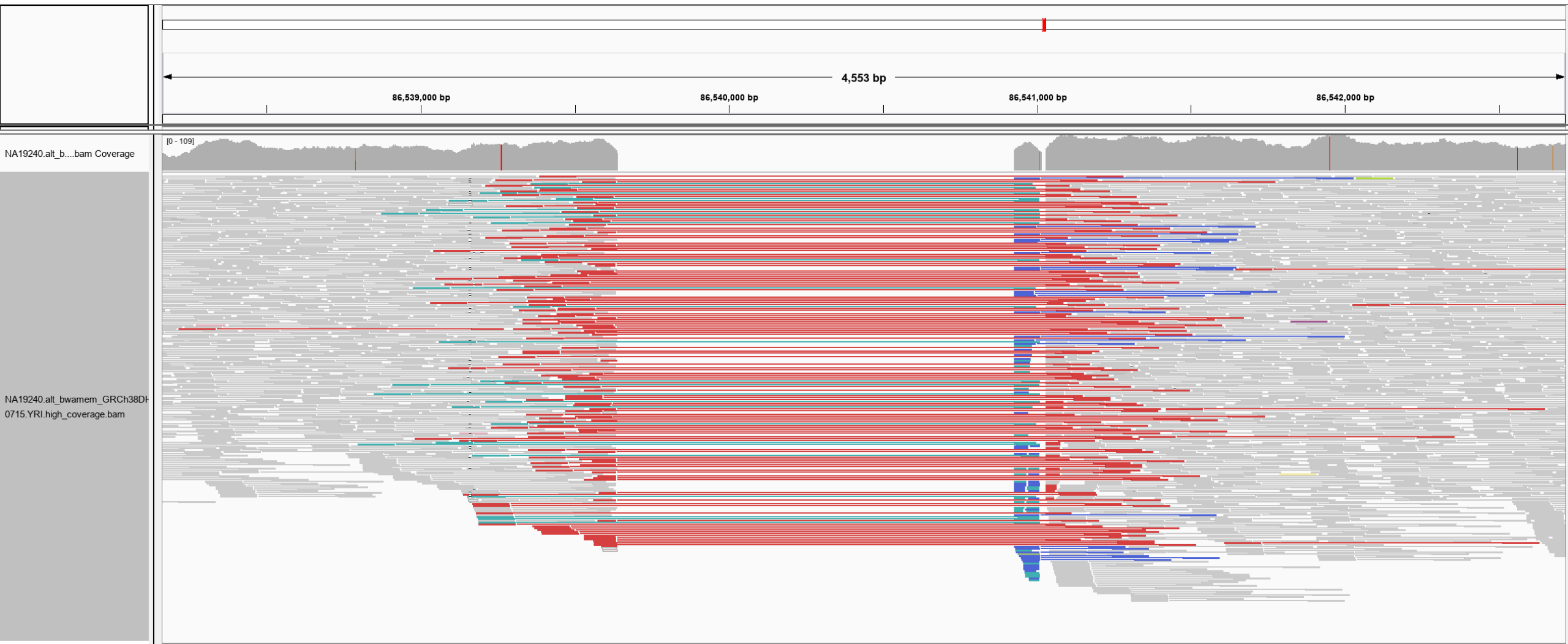
chr9:69280304-69281825



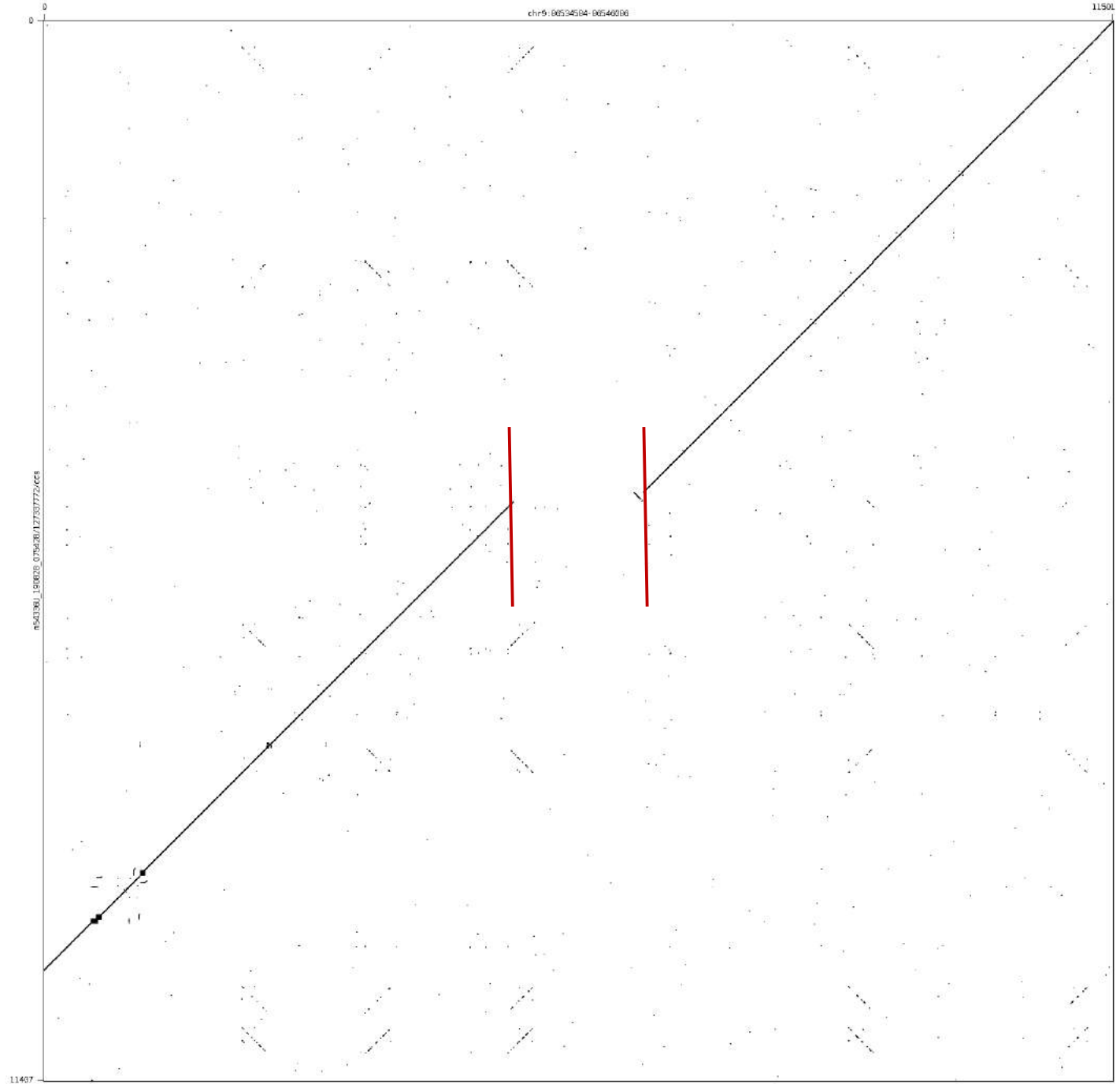
chr9:6275571-66266731 vs. #543391\_198820\_075426/15981140/ccs  
Zone 2: 1  
Word length: 10 OC ratio seq1: 0.4931  
Window size: 0 OC ratio seq2: 0.4947  
Matrix: editDist Program: (Open 1.40 final)



chr9:86539584-86541086

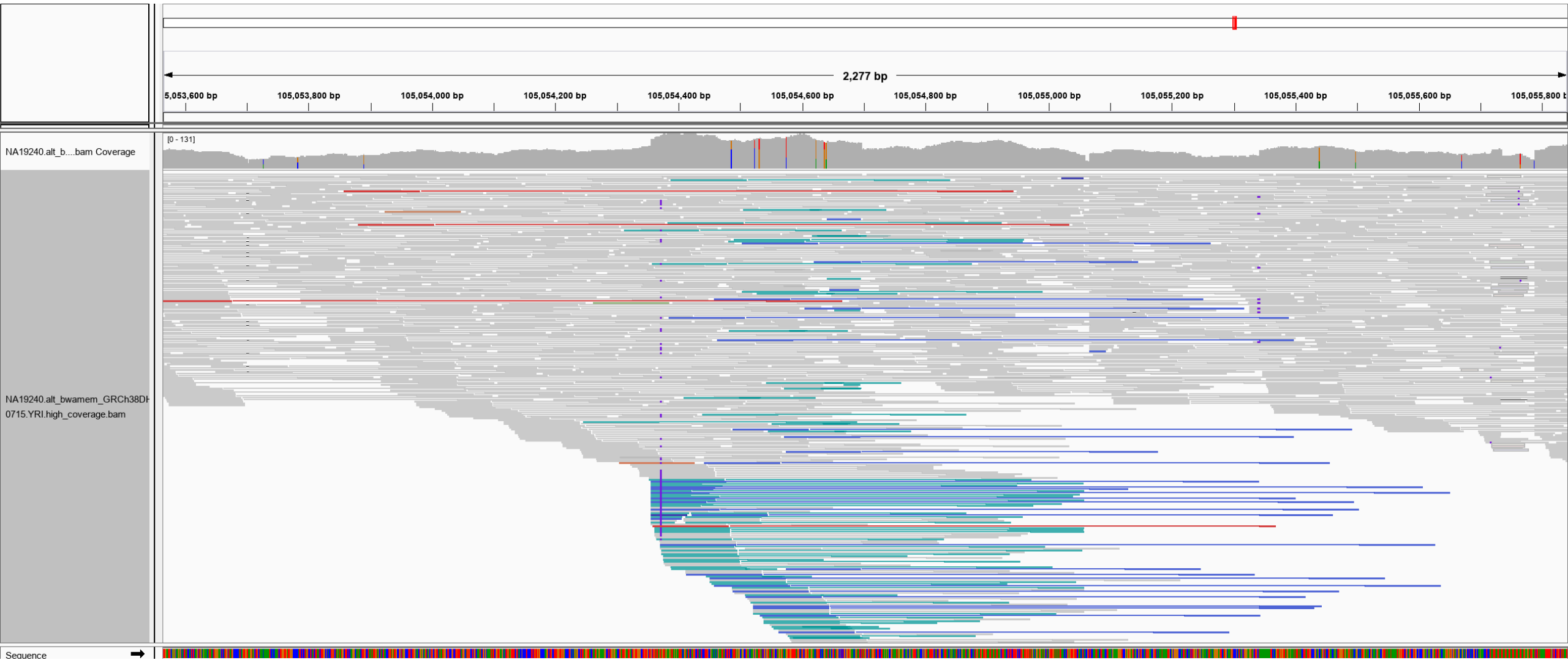


chr9:8834584-8854888 vs. n54390\_190826\_079426/12753772/ccs  
Zoom: 7 - 1 GC ratio seq1: 0.4016  
K-mer length: 10 GC ratio seq2: 0.4016  
Window size: 0  
Matrix: edno.net Program: cepard (1.46 final)

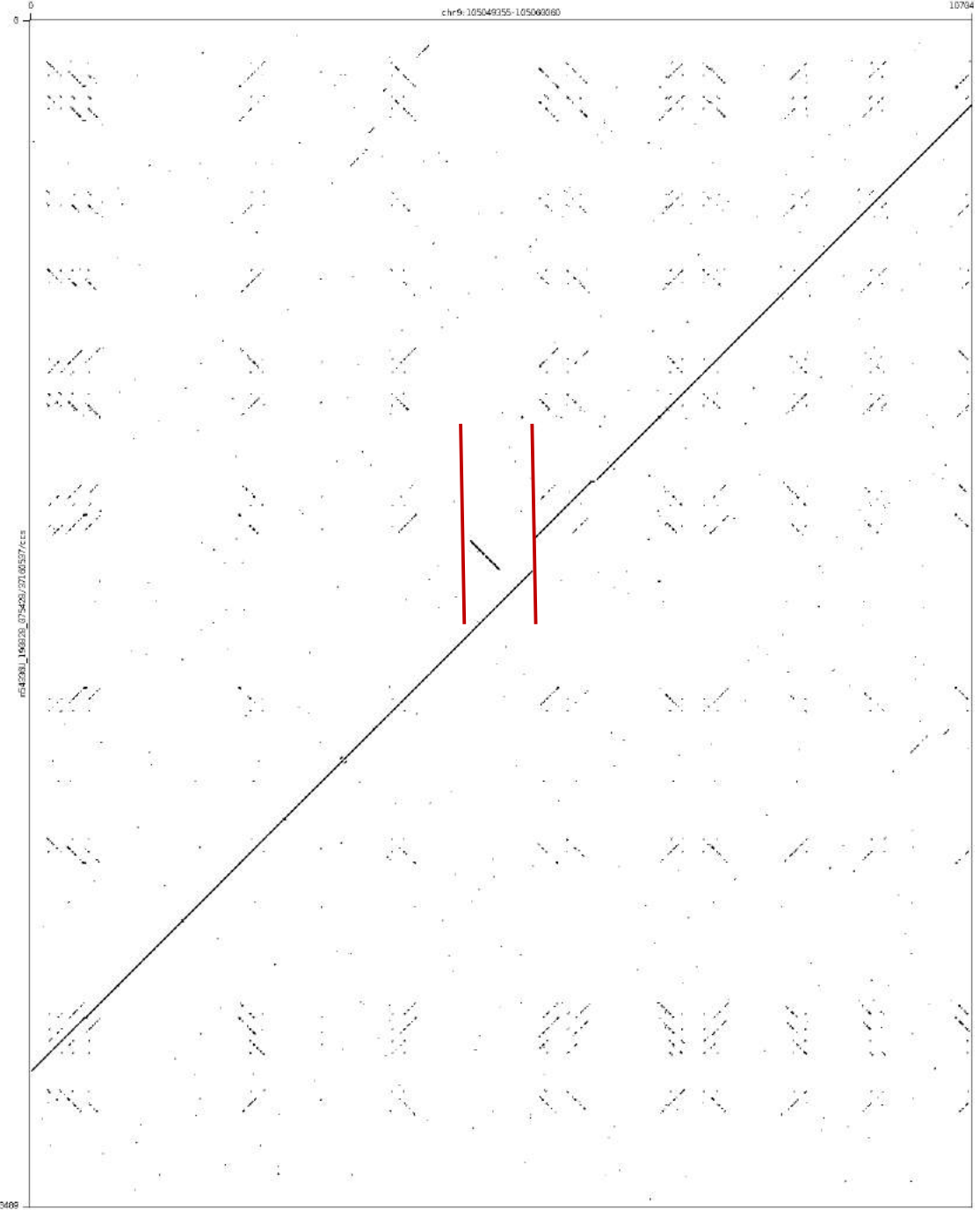




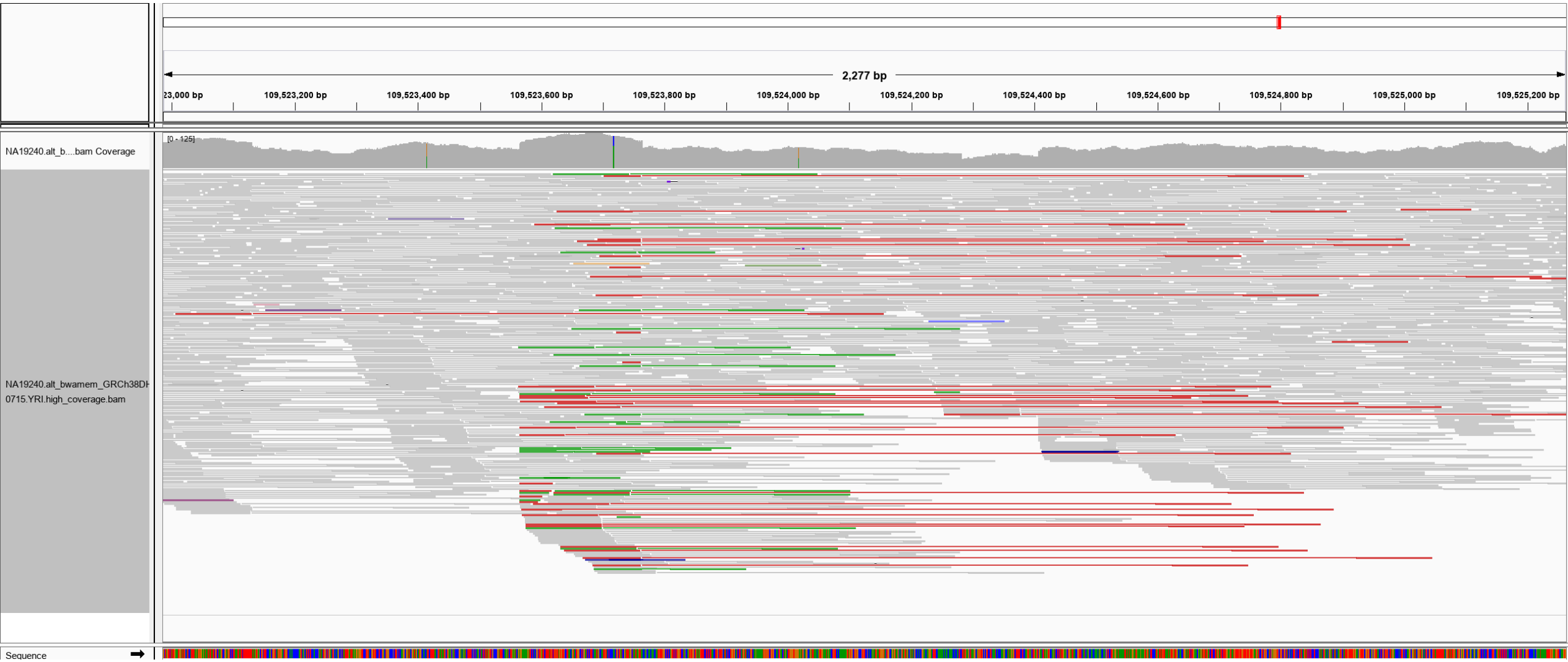
chr9:105054355-105055067

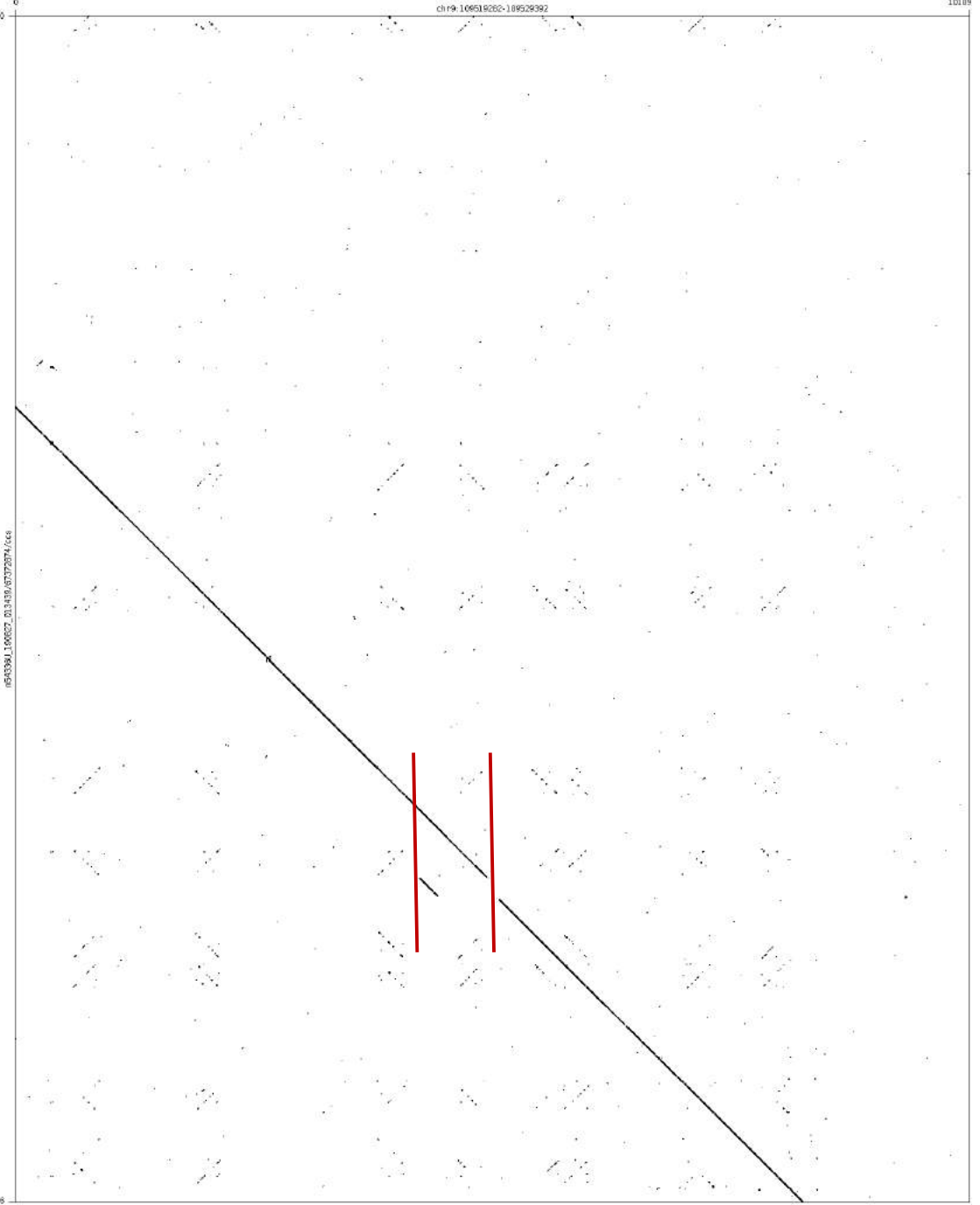


chr9:105049355-105060000 vs. n543381\_150320\_075426/371.00377.ccs  
Zoom: 8 x1  
Word length: 10 GC ratio seq1: 0.4397  
Window size: 0 GC ratio seq2: 0.4433  
Matrix: edna.mat Program: Gepard [1.40 final]



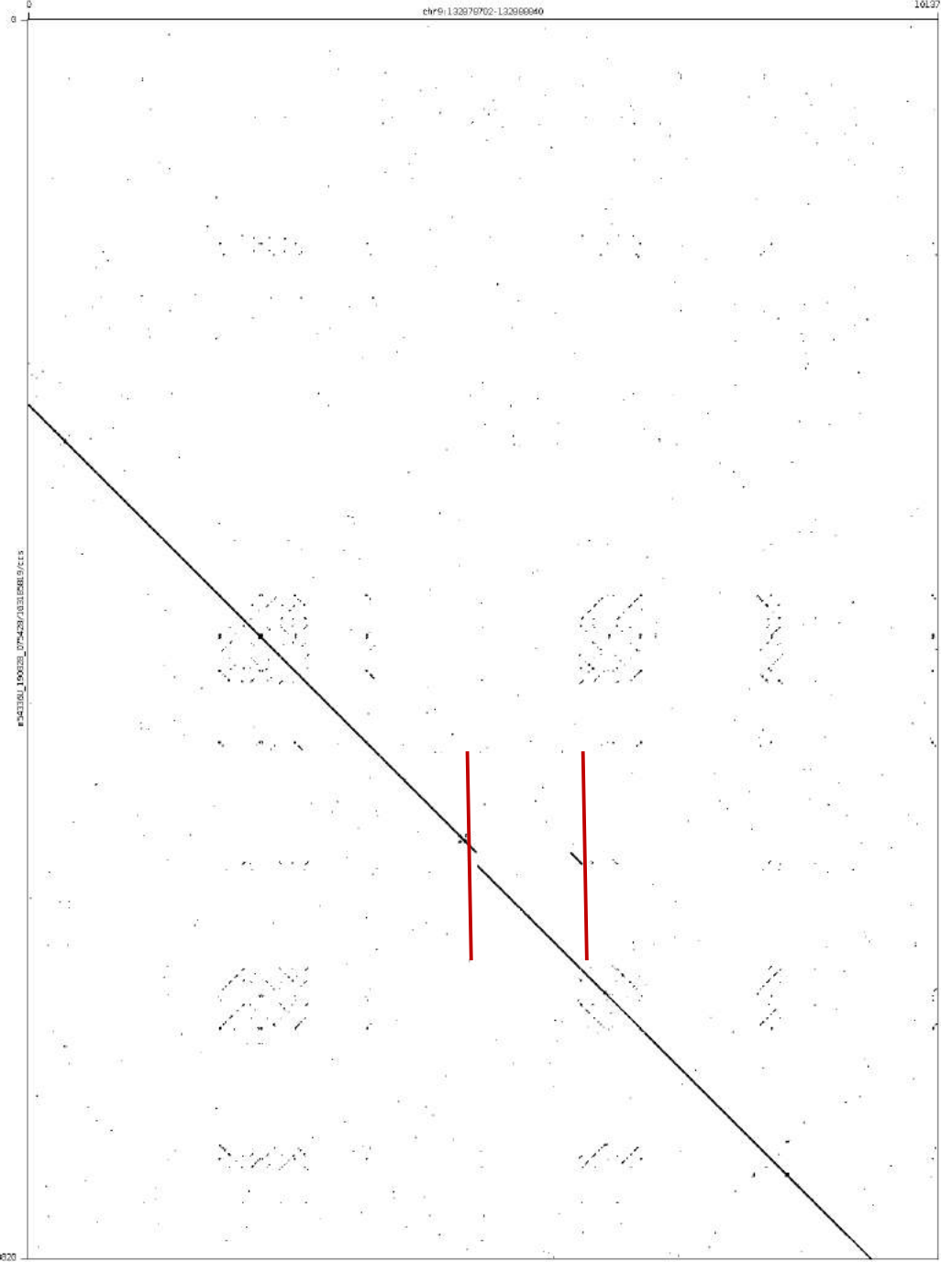
# chr9:109523550-109524392



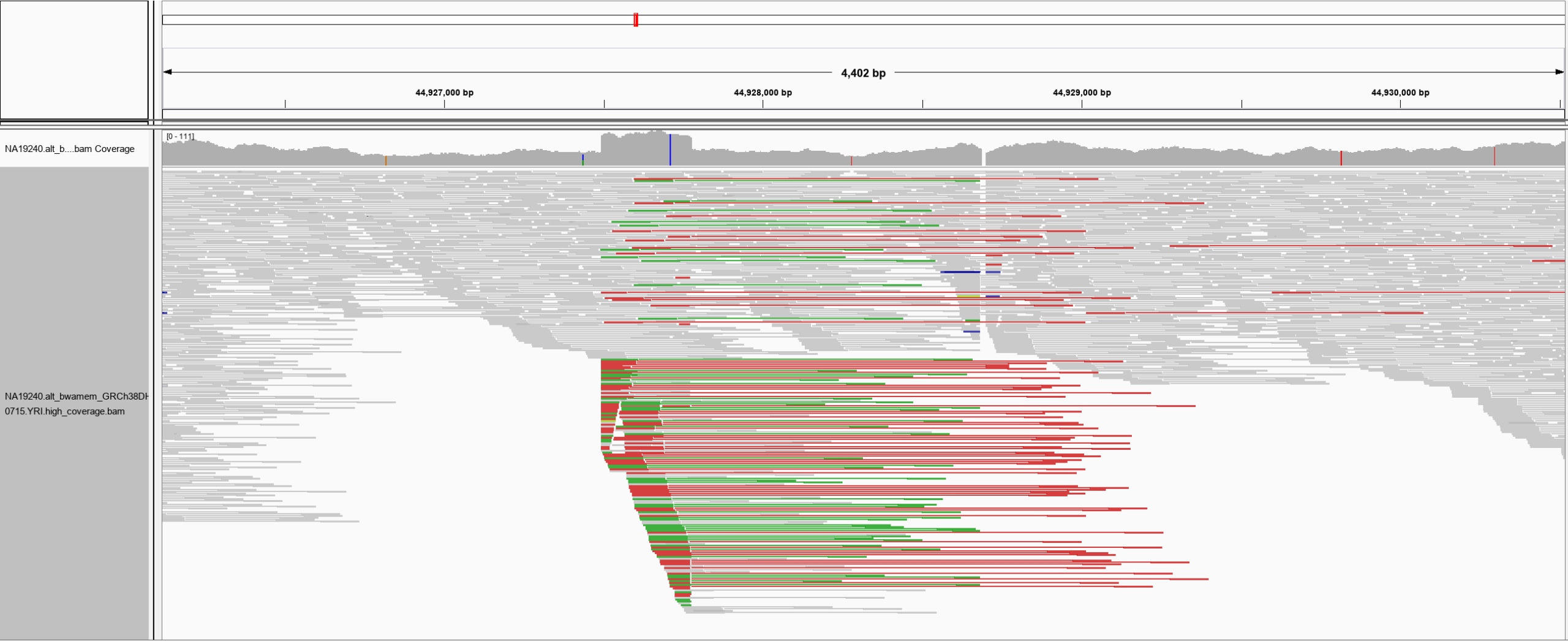


chr9:132883700-132884812

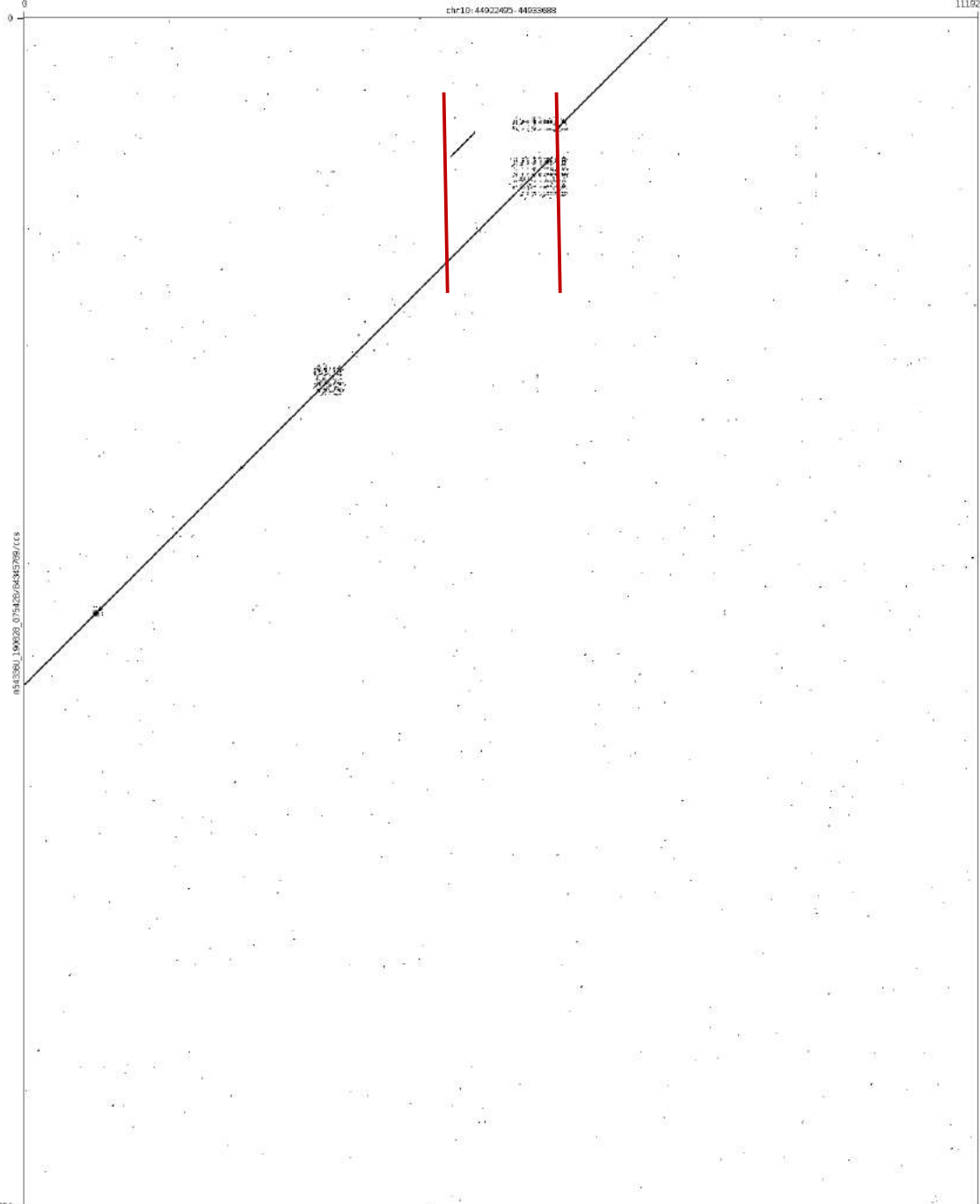




chr10:44927495-44928688

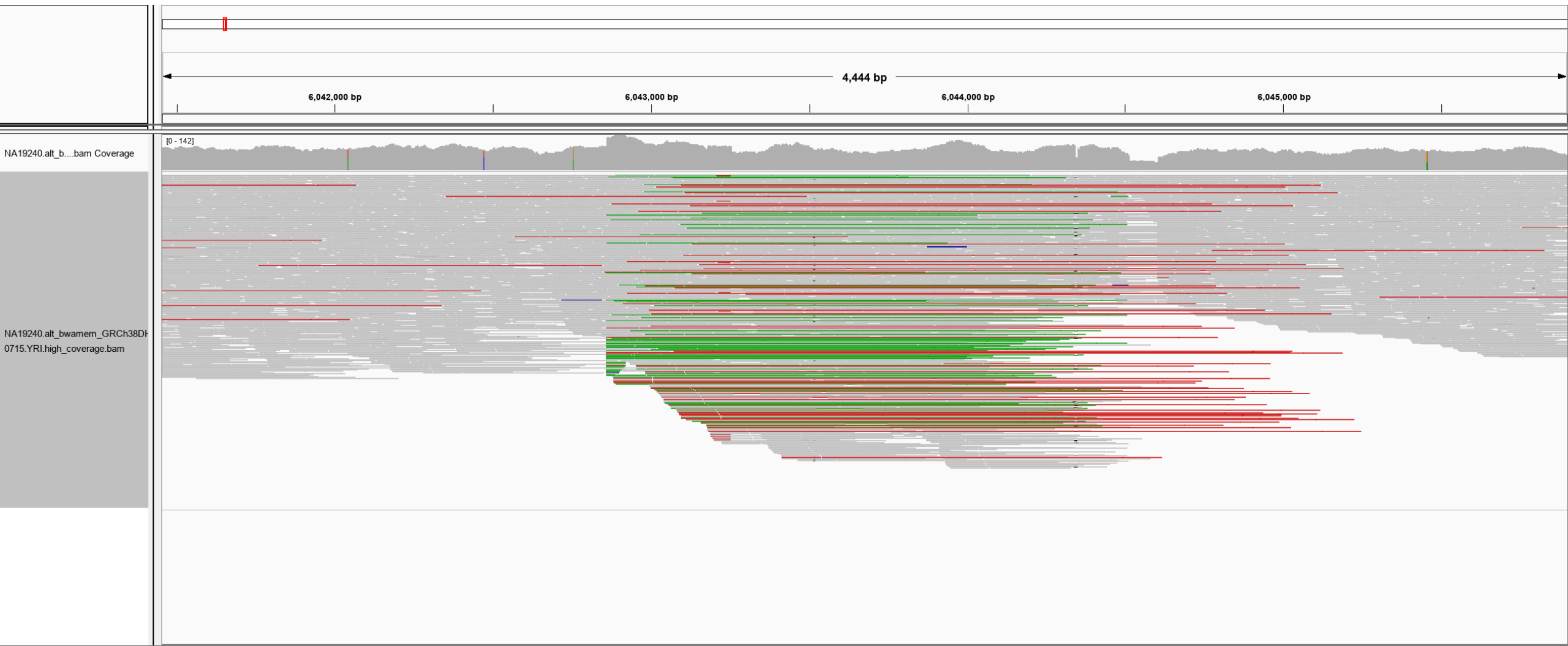


chr10:44922495-44923000 vs. #54300\_190820\_075429/94945769/ccc  
Zoom: 0.1 GC ratio seq1: 0.5264  
Window length: 10 GC ratio seq2: 0.4937  
Window size: 0  
Matrix: edna.net Program: gepard (1.00 final)





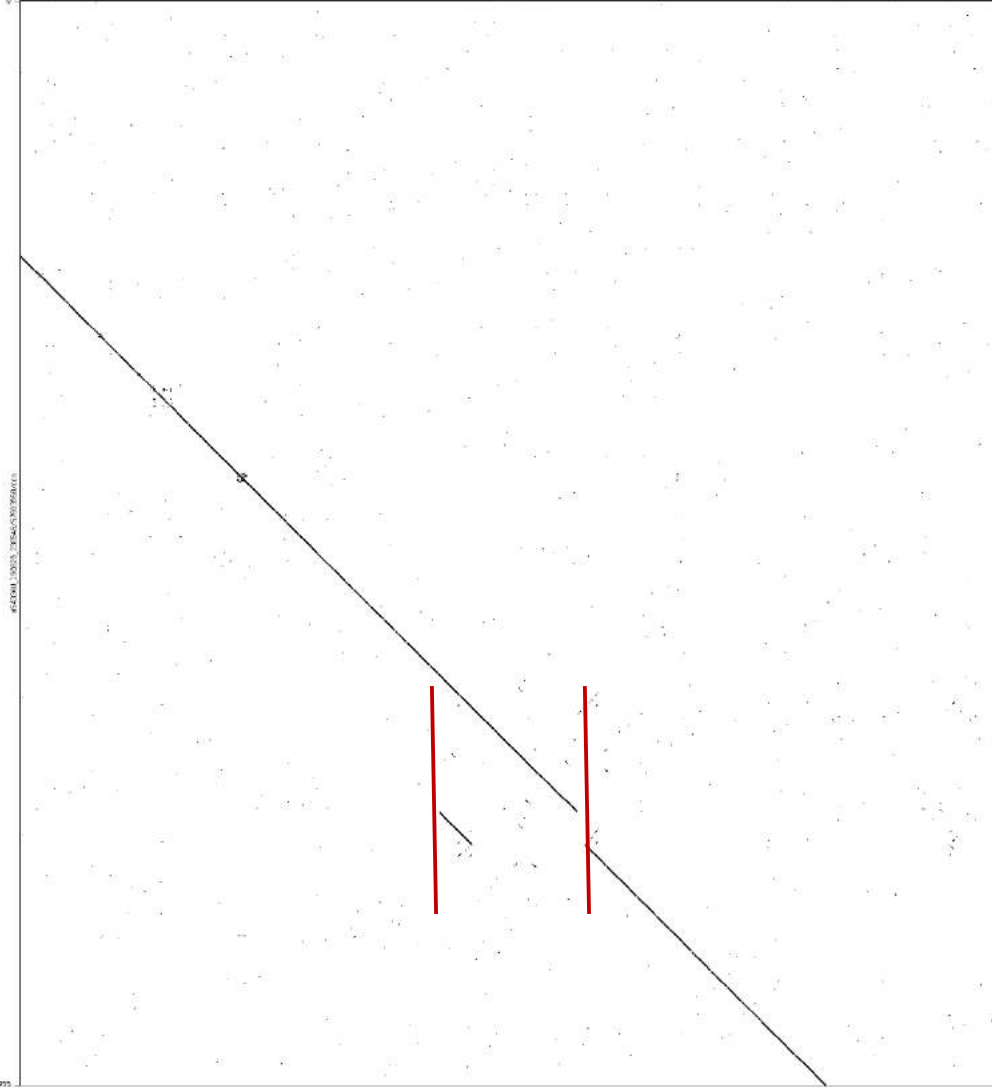
chr11:6042862-6044585



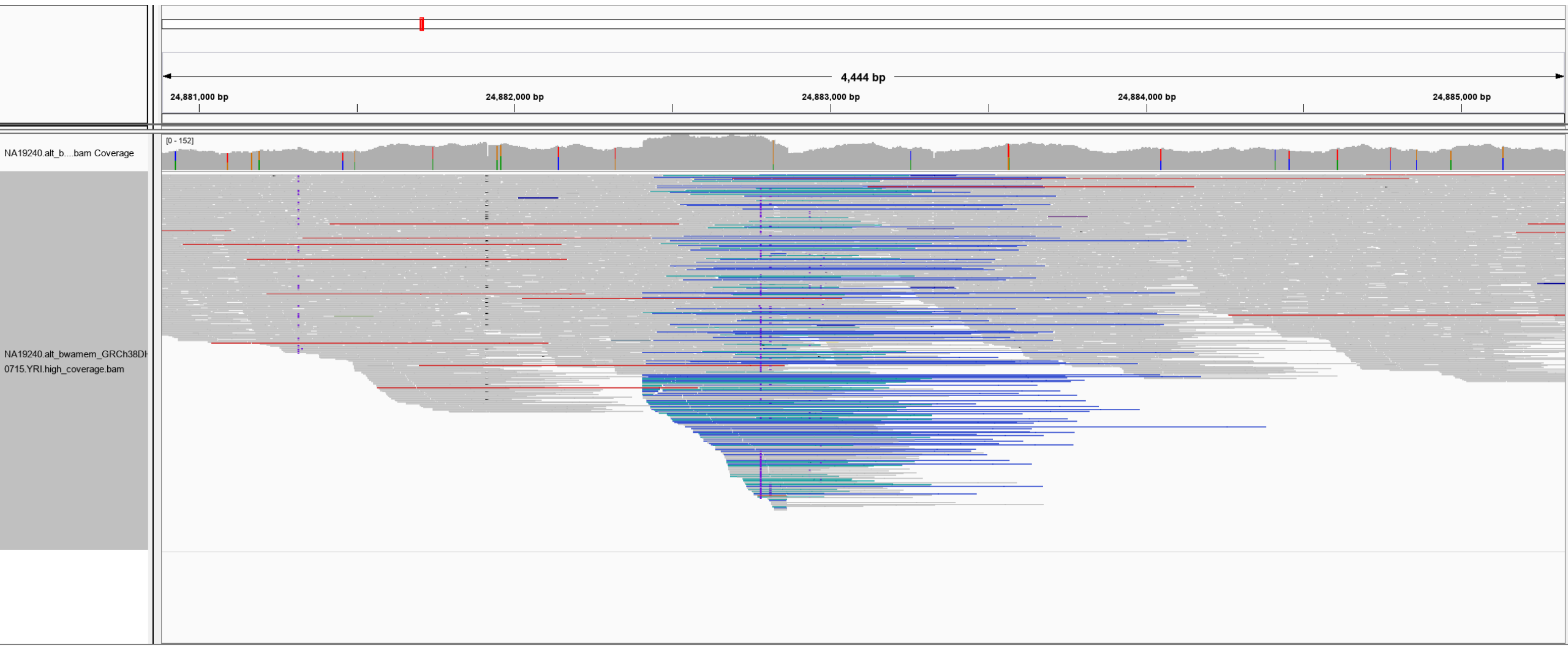
chr11:802362-804914 vs chr11:140629-230165/STRIP03/chr11  
size: 7.2 kb  
word length: 10 GC ratio: 0.4009  
max cov: 9 GC ratio: 0.2009  
matrix: none set Program: Repeat (1.00 150k)

chr11:802362-804914

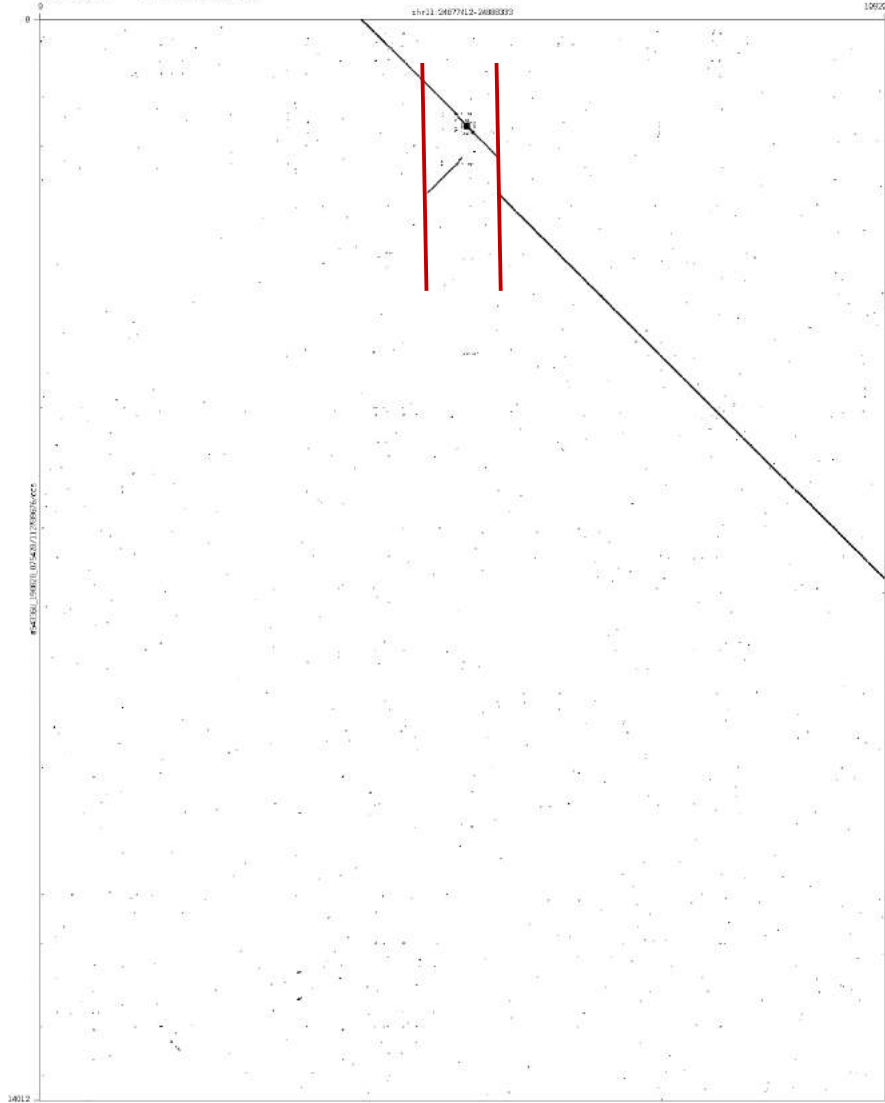
11655



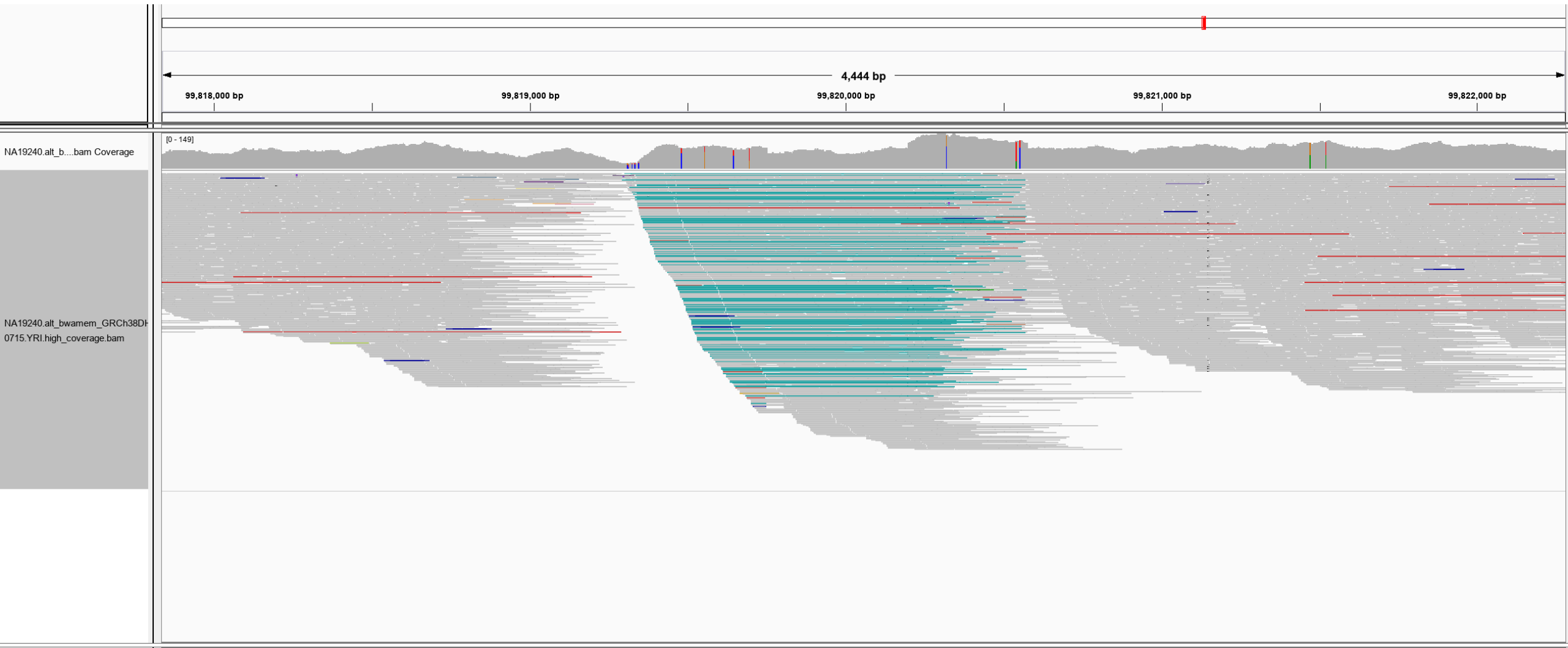
# chr11:24882412-24883333

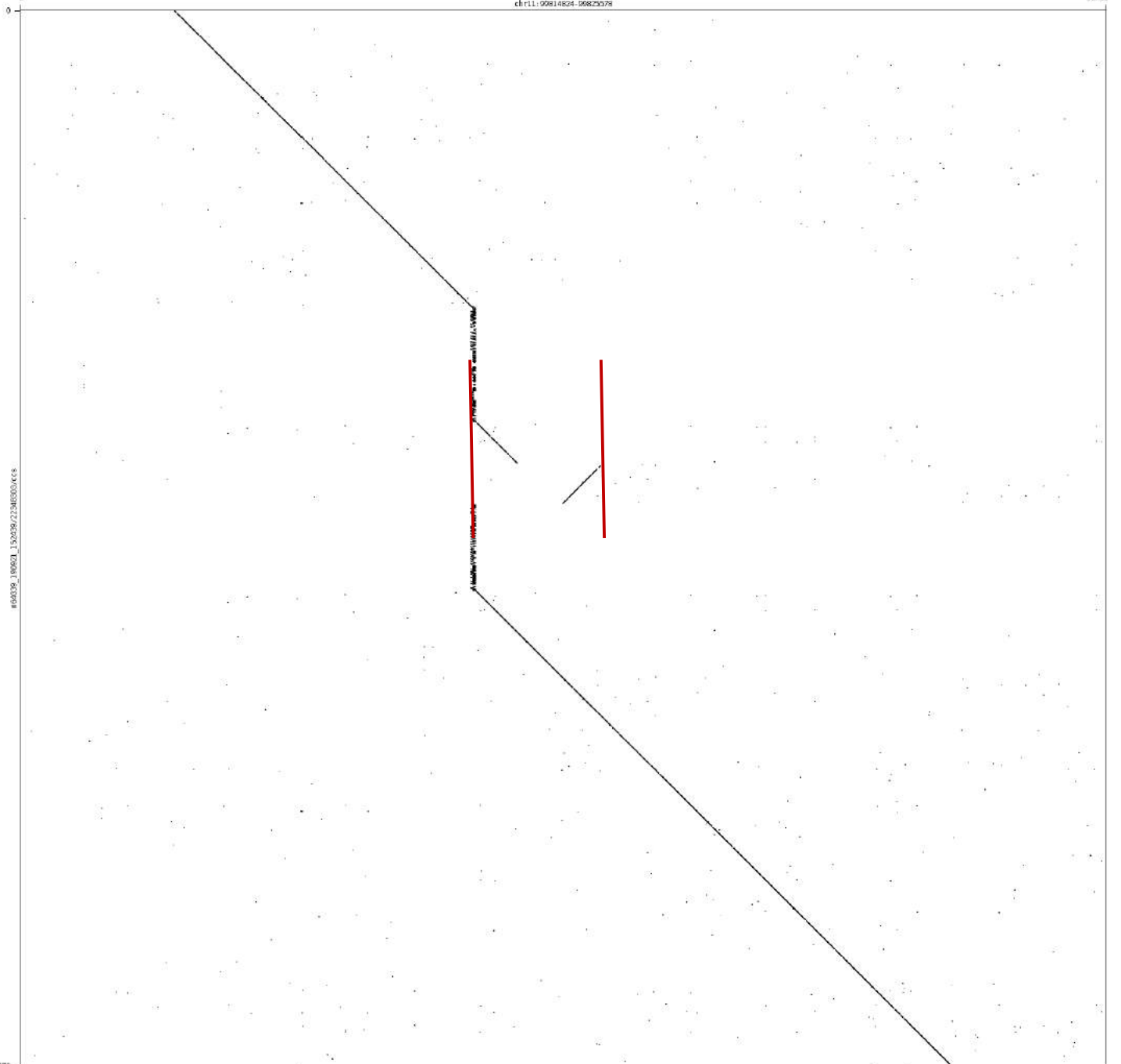


chr11:24877112-24883223 vs. v441001.180128\_07x020/11296896/xxx  
Zeta: 0.1  
Word length: 10 GC ratio: 0.552  
Minimum: 0 GC ratio: 0.508  
Matrix: 100x100 Program: 0.00 (log)

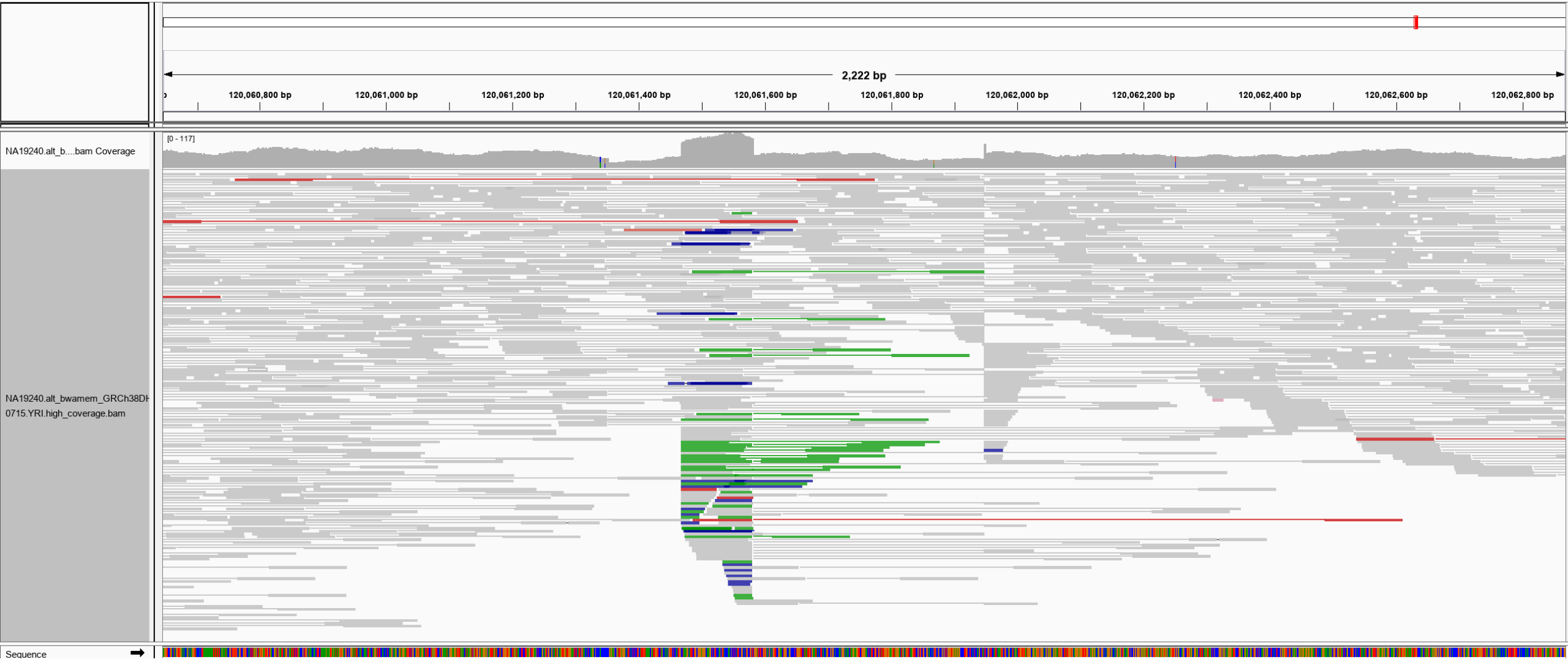


chr11:99819304-99820578

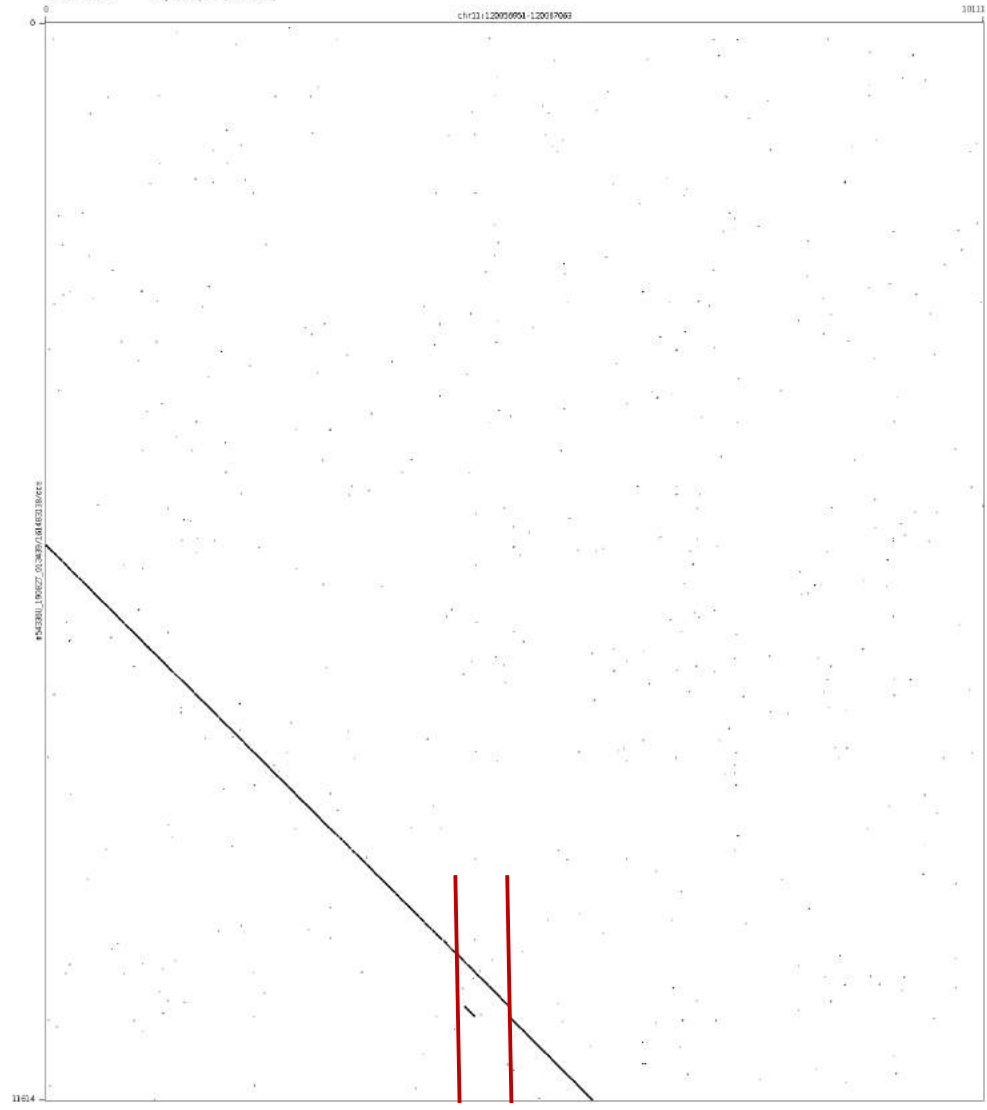




chr11:120061454-120062063



chr11:12006051-12007069 vs. s54380\_190827\_013499/101483138/acc  
Zoom: 1  
Word length: 10 GC ratio seq1: 0.5068  
Window size: 0 GC ratio seq2: 0.4967  
Matrix: adha.mat Program: separd (1.40 final)



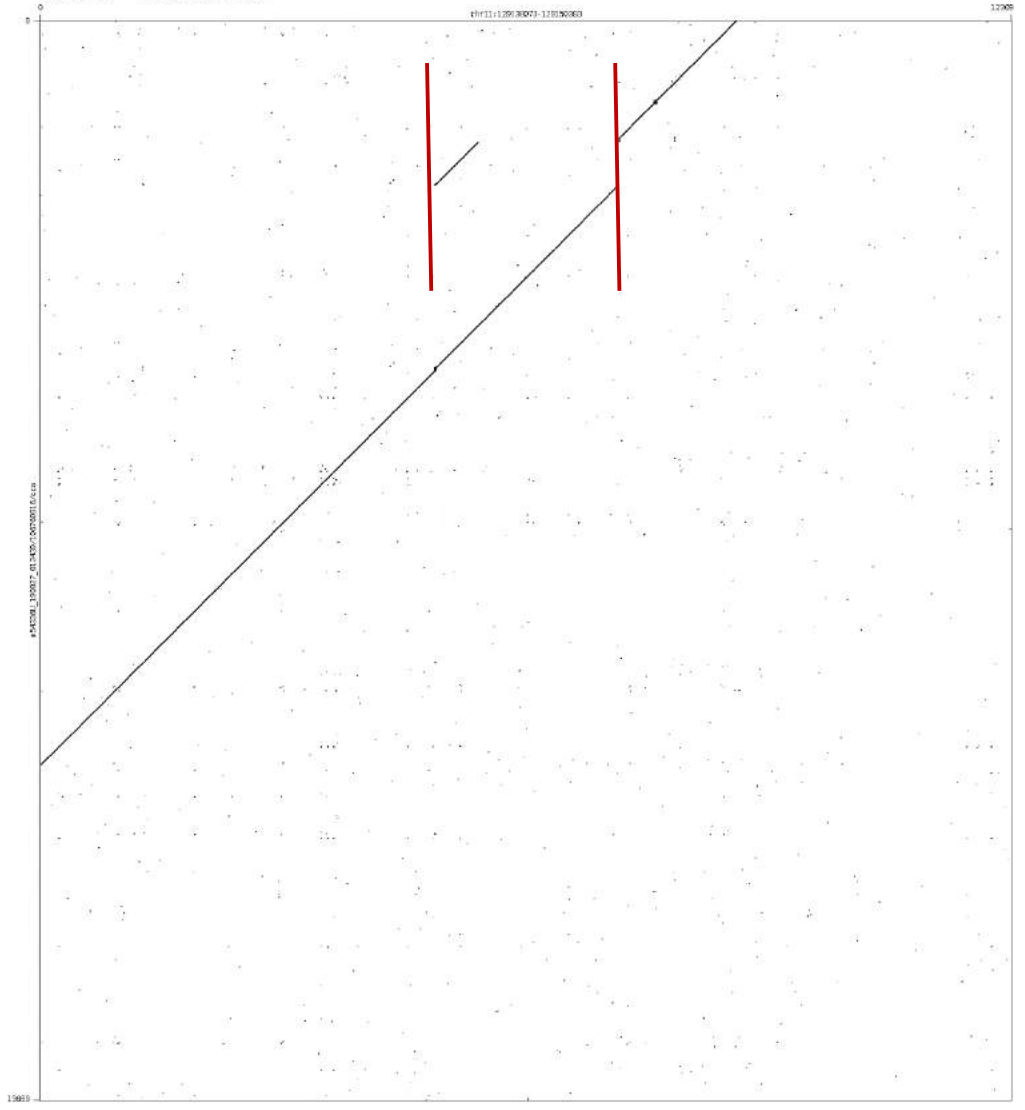
11614



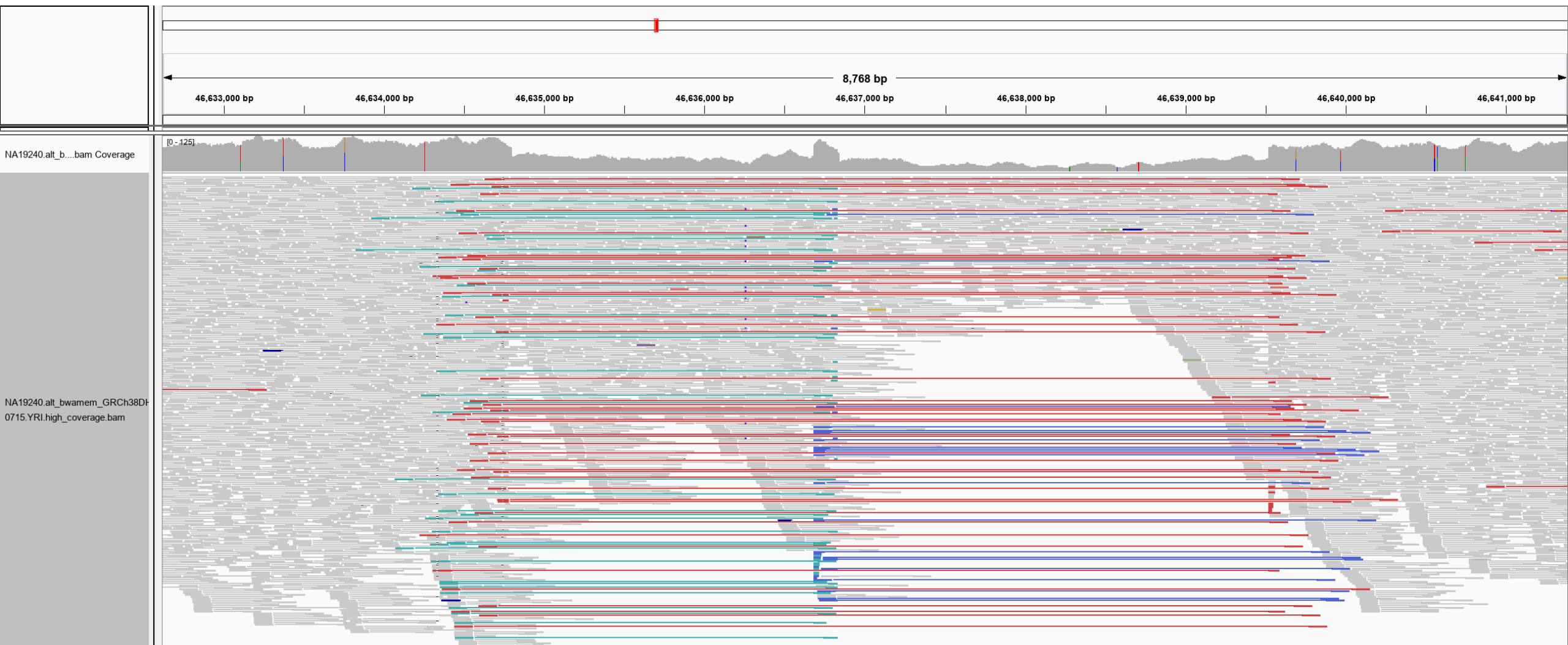
chr11:129143073-129145383



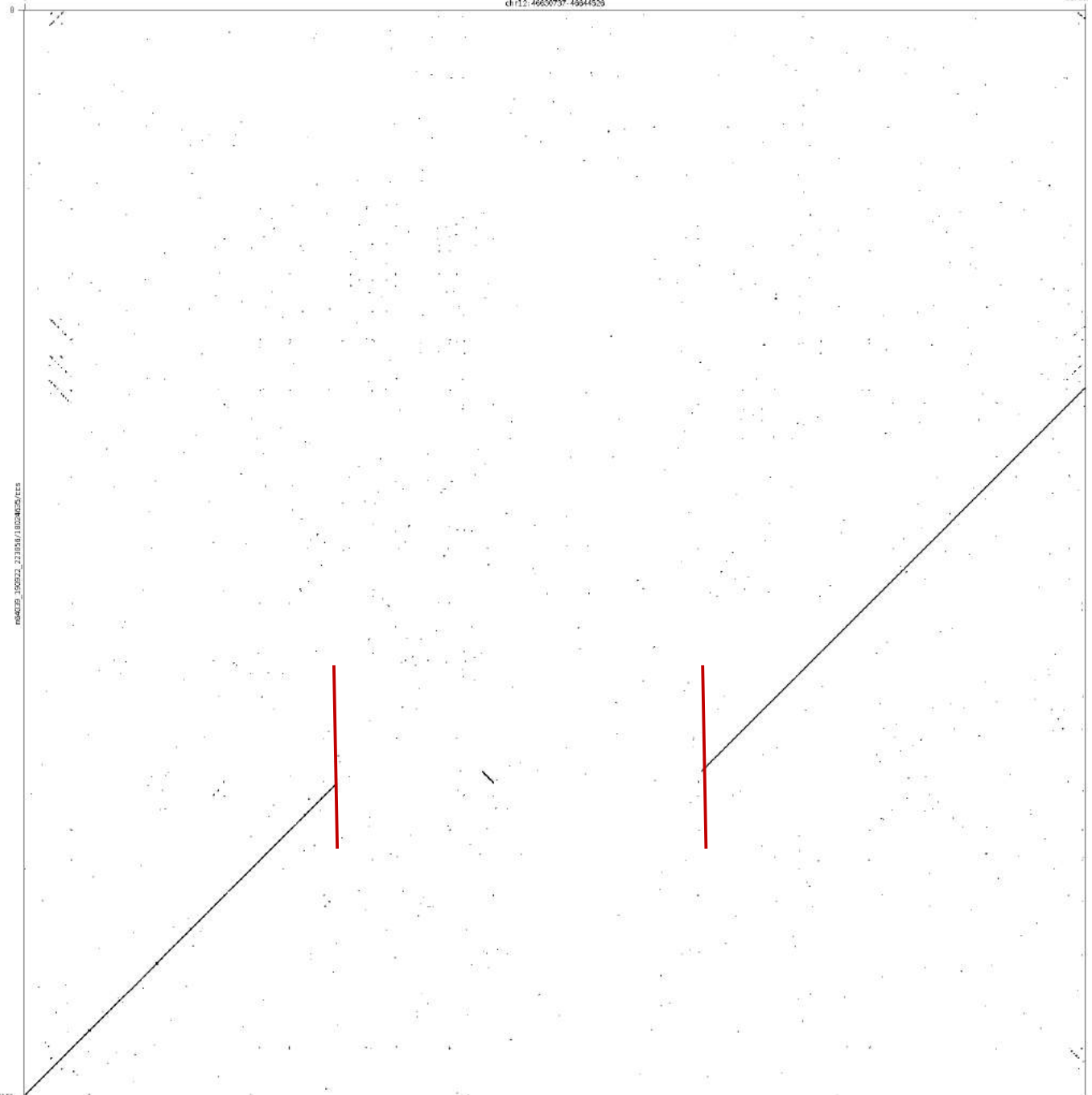
chr11:129130073-129130083 vs. #543361\_318027\_013426/100700016/ccc  
Score: 9.1  
Word length: 10 OK ratio seq1: 0.396  
Window size: 6 OK ratio seq2: 0.342  
Matrix: edit-dist Program: Gapped (1-40 [line])



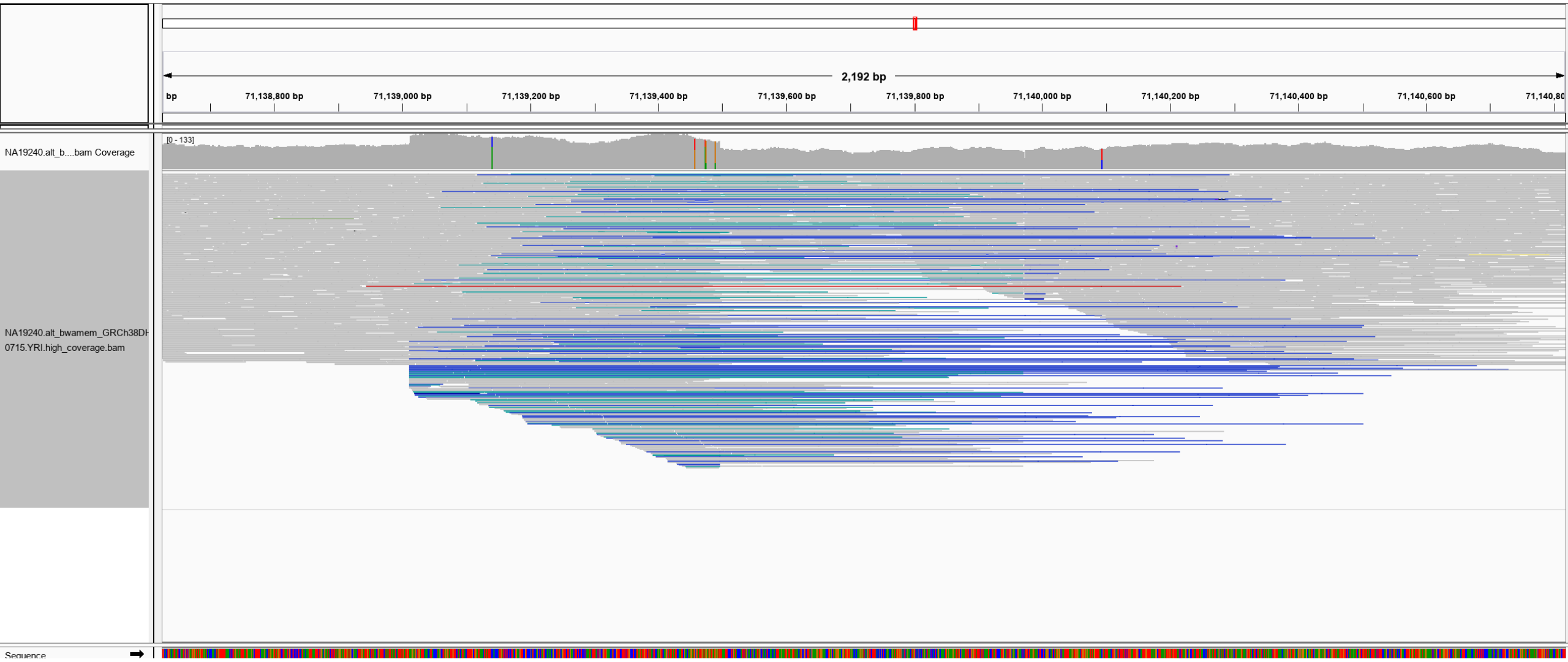
chr12:46634787-46639521

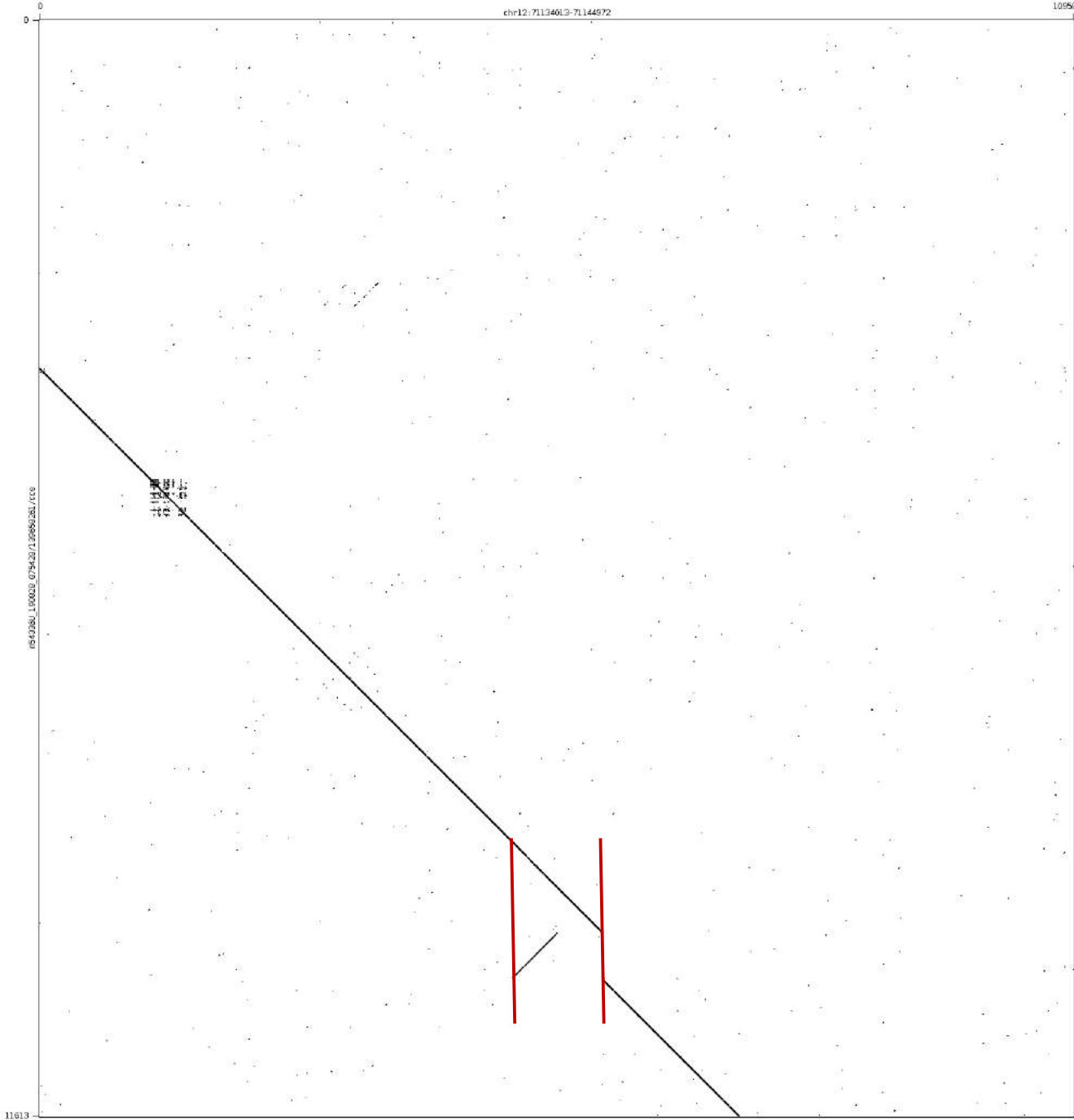


rs4628\_190622\_222056/1002465/ctts

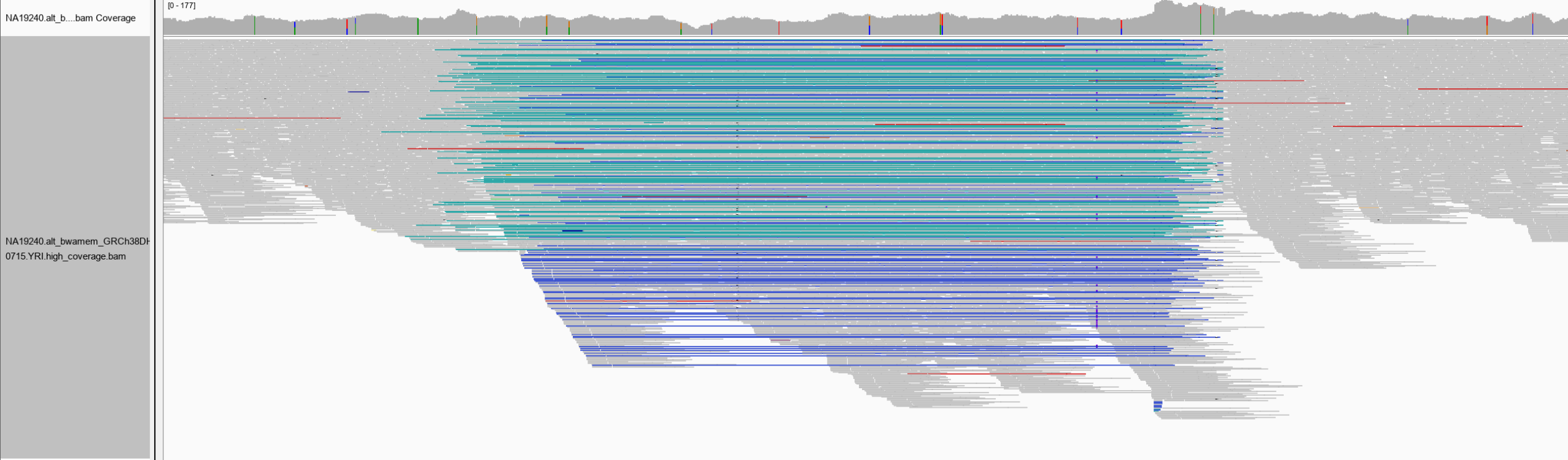
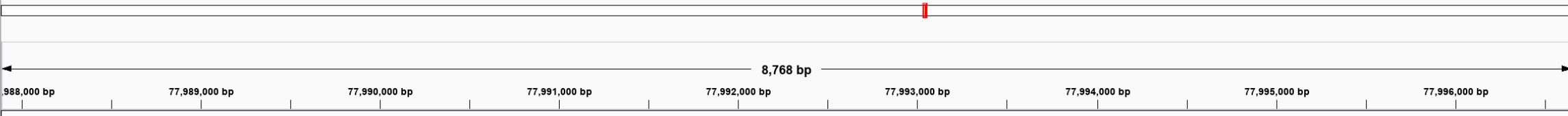


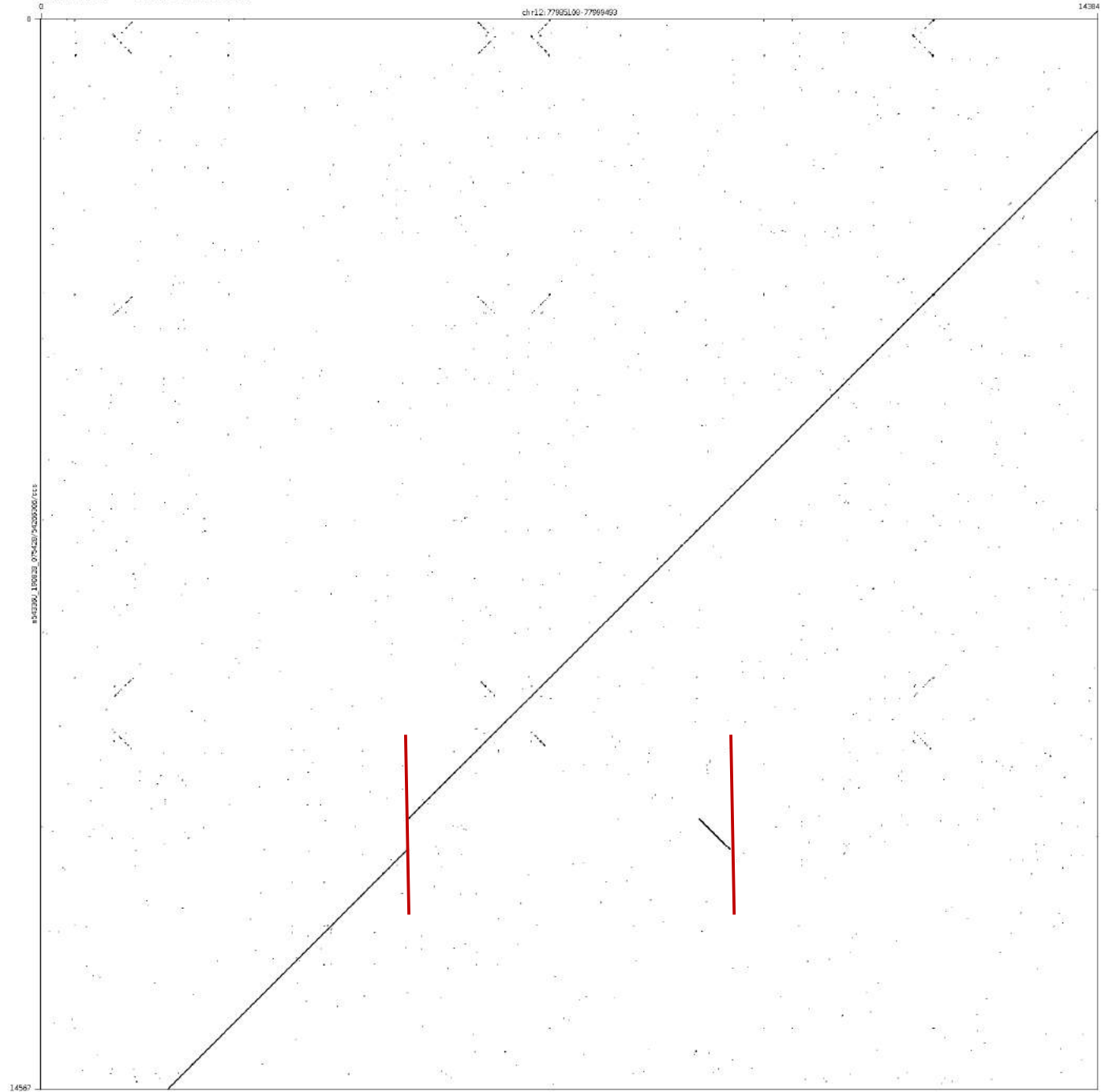
chr12:71139013-71139972





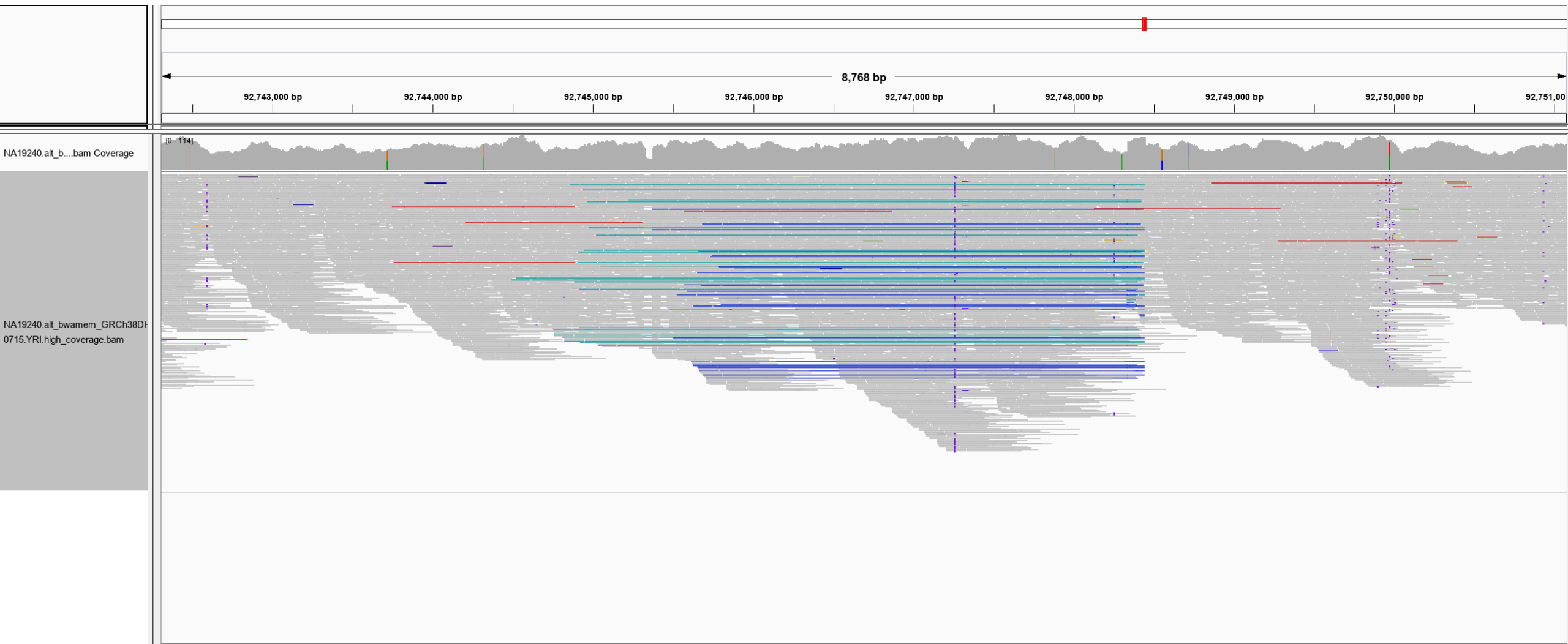
chr12:77990108-77994493

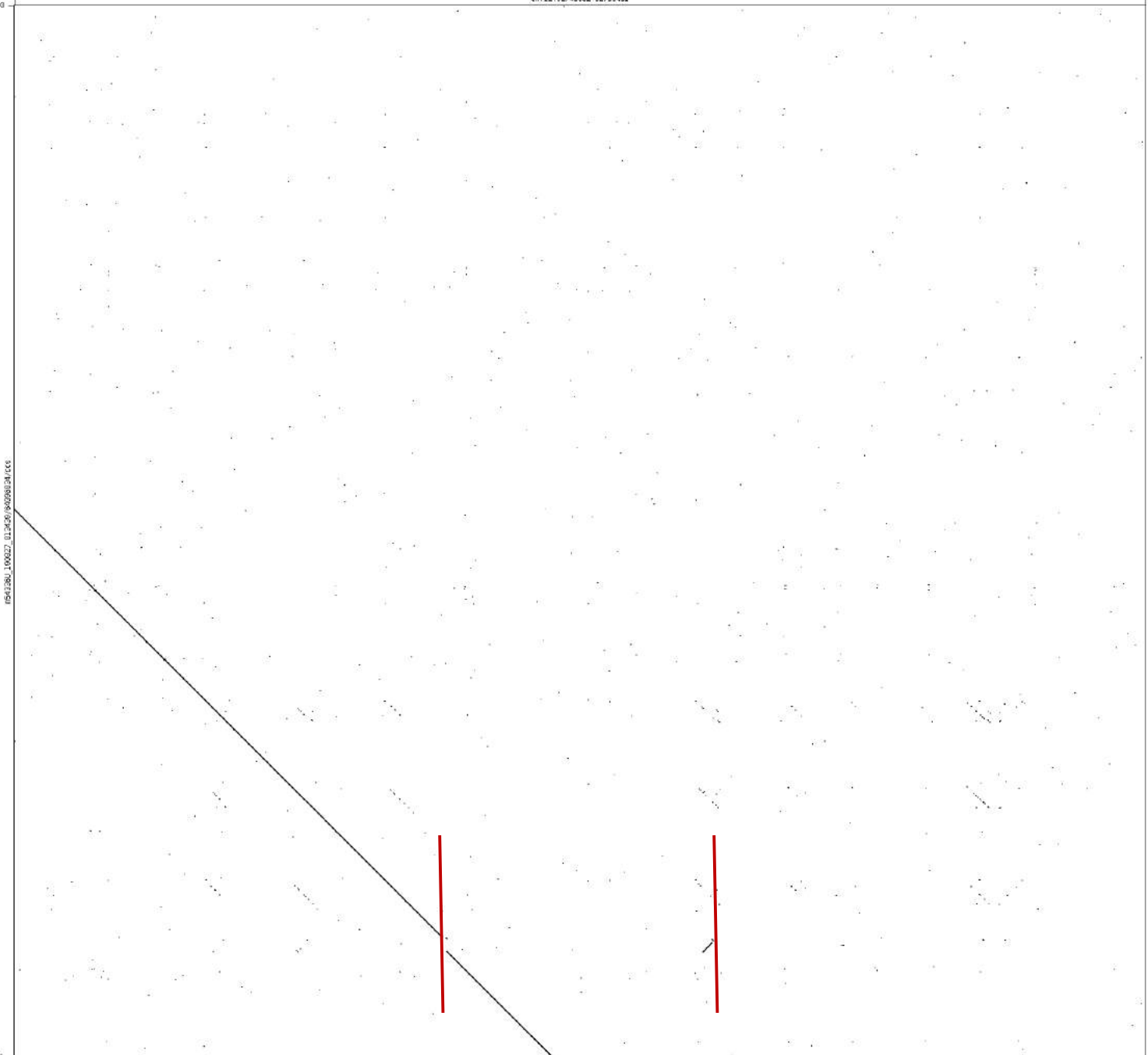




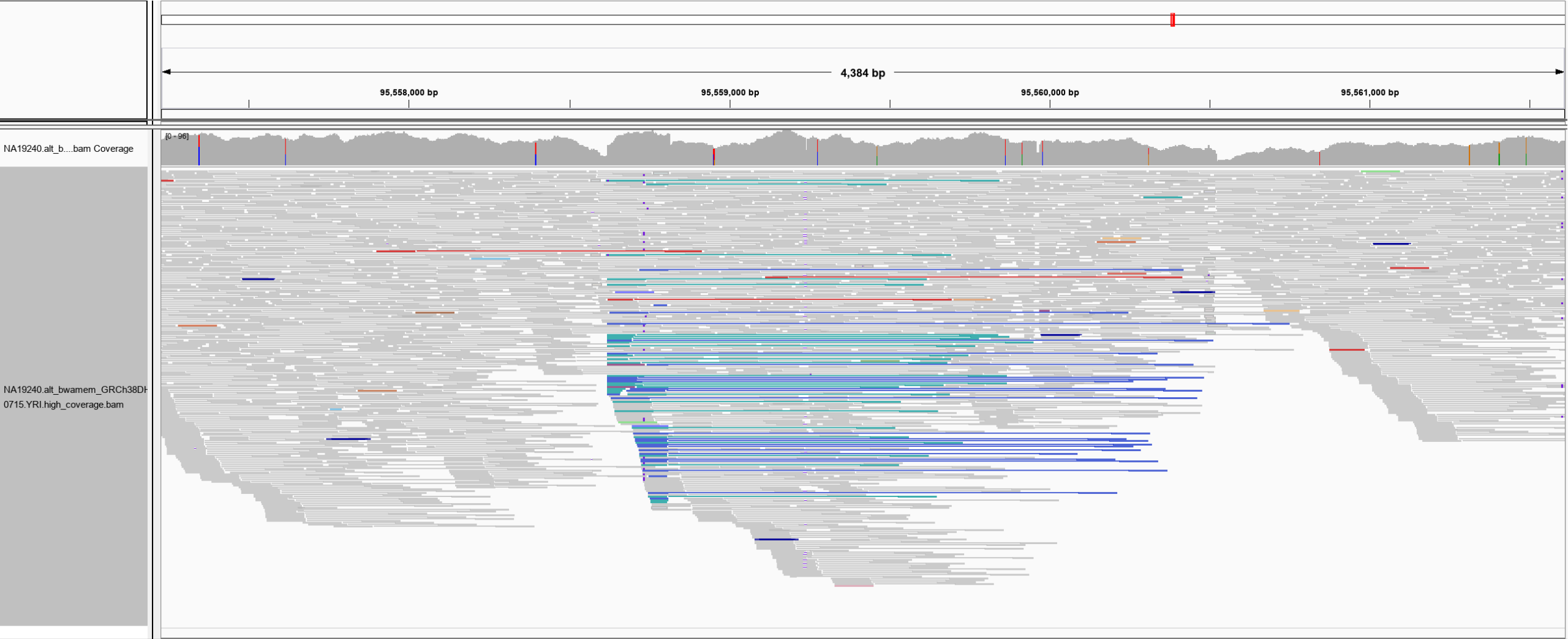


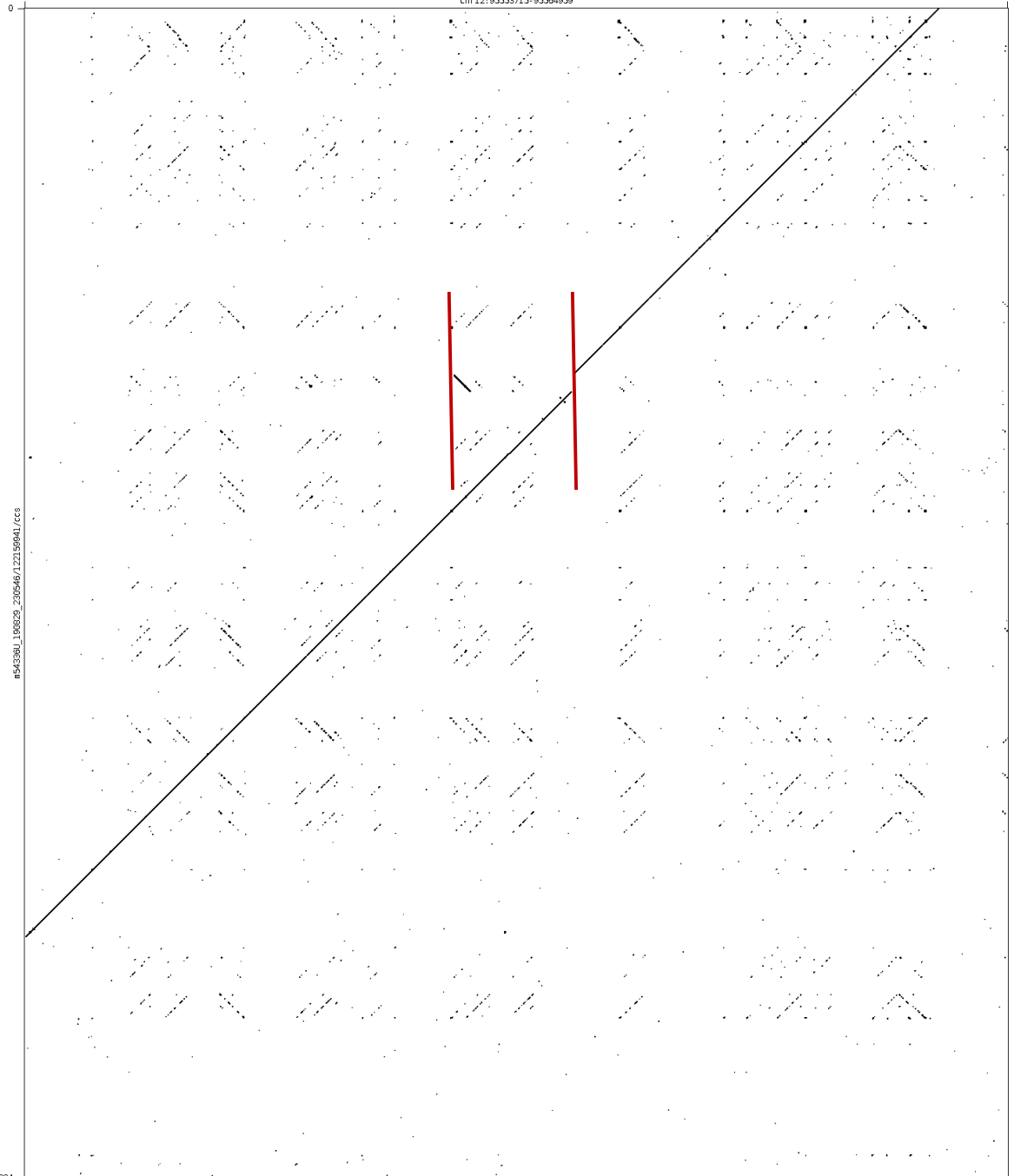
chr12:92745382-92748451





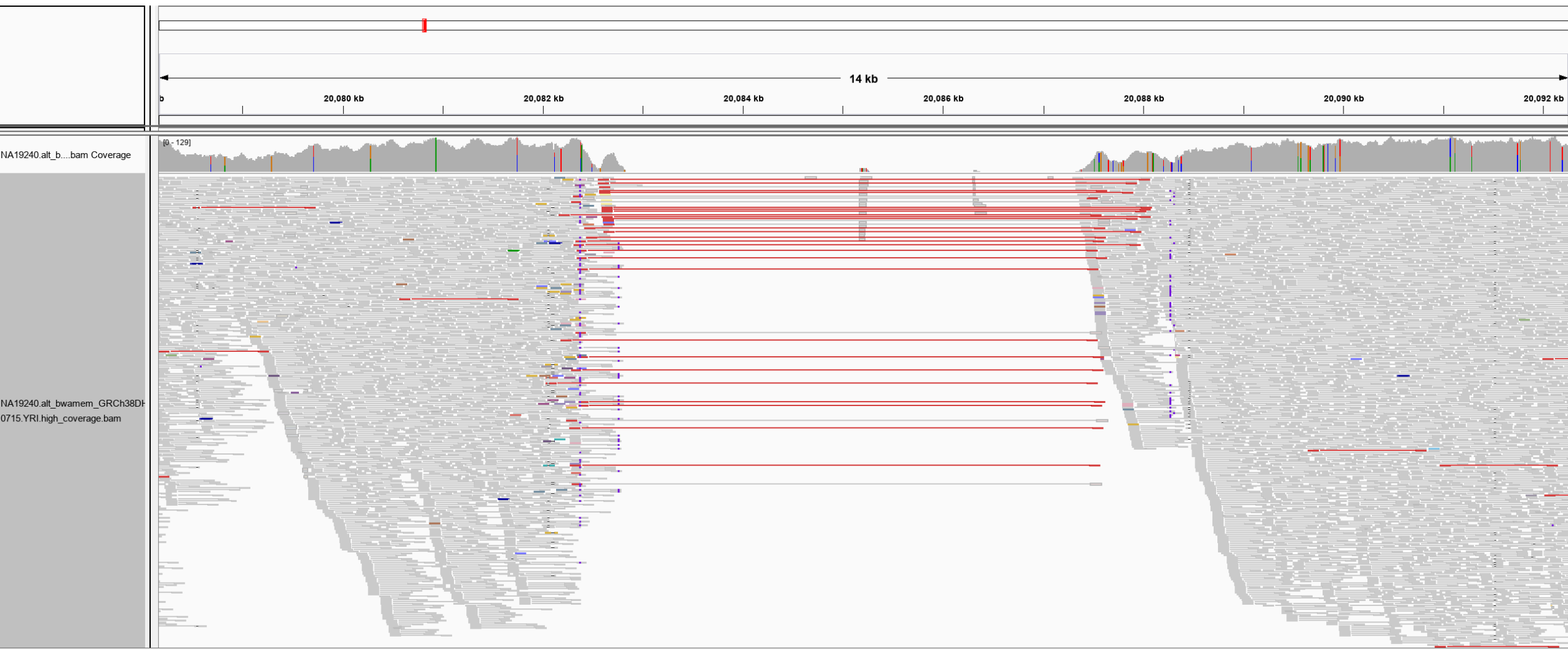
chr12:95558627-95559959

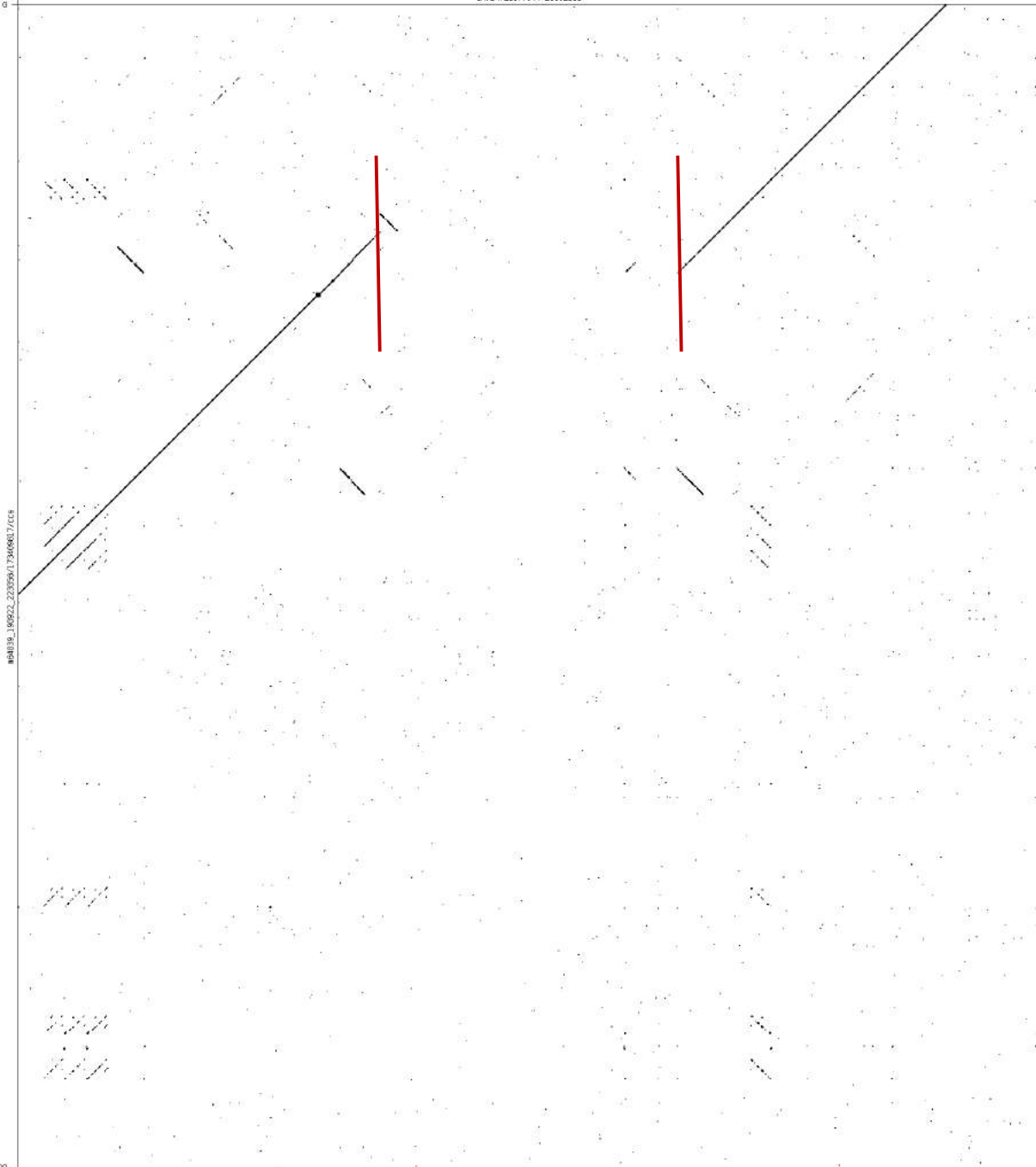




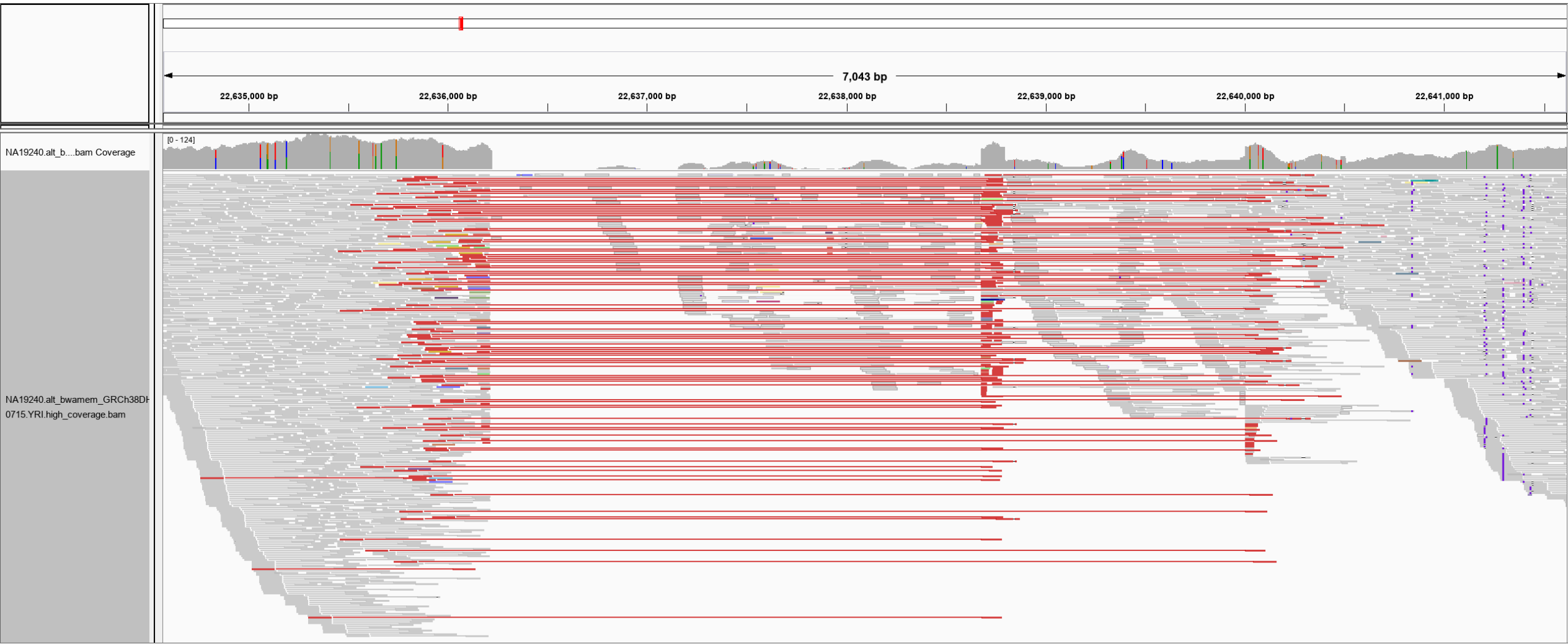
n543380\_190829\_230546/122159941/ccs

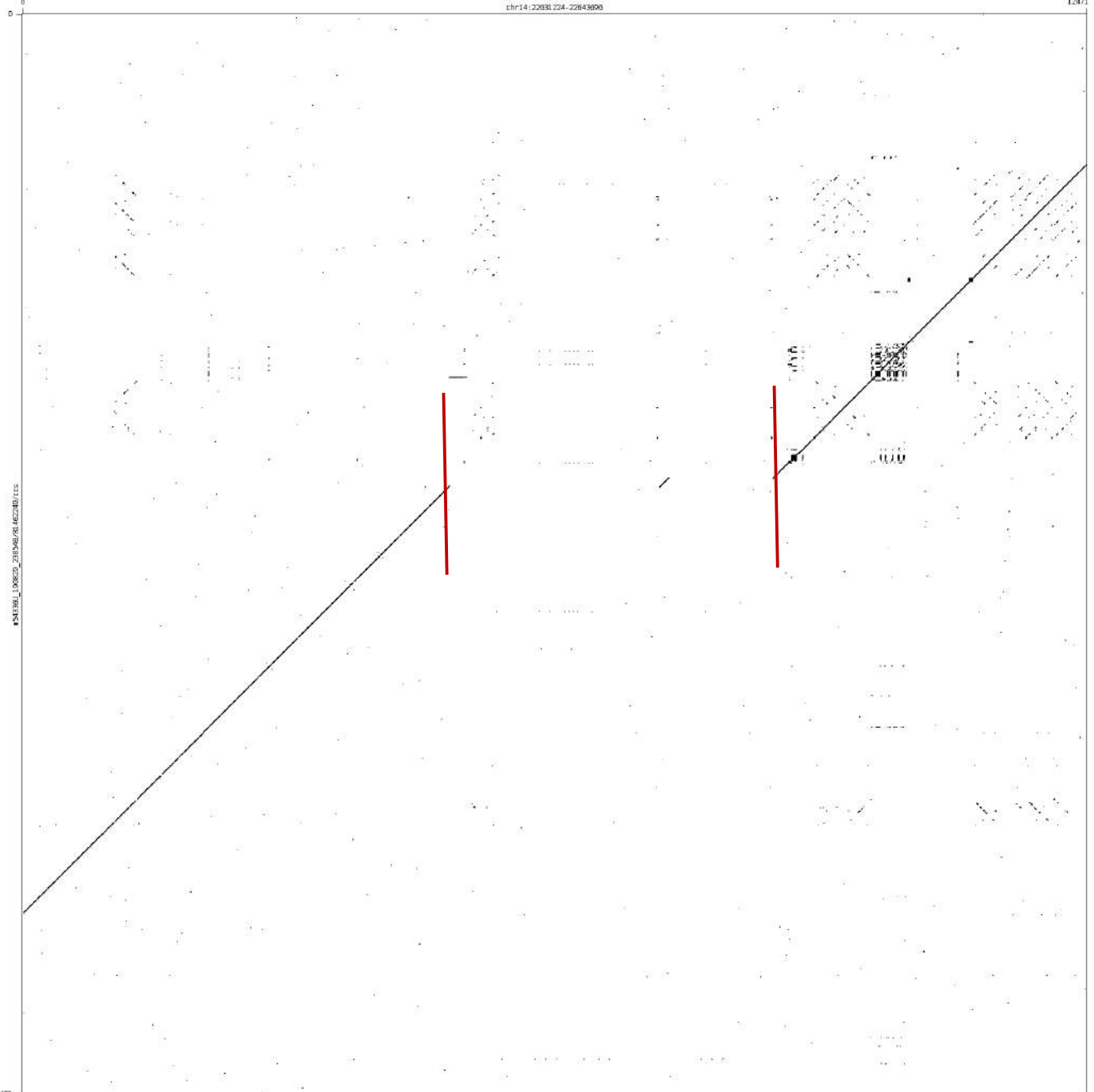
chr14:20082944-20087060





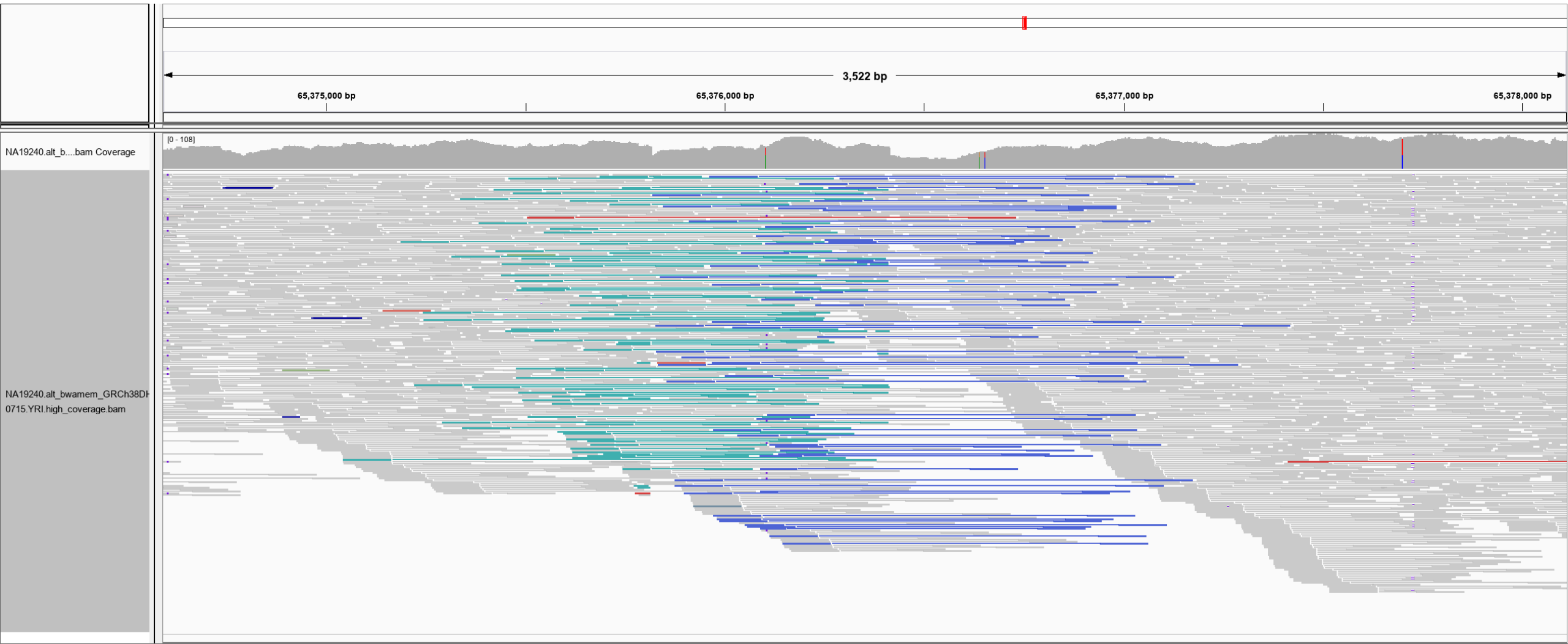
chr14:22636224-22640024

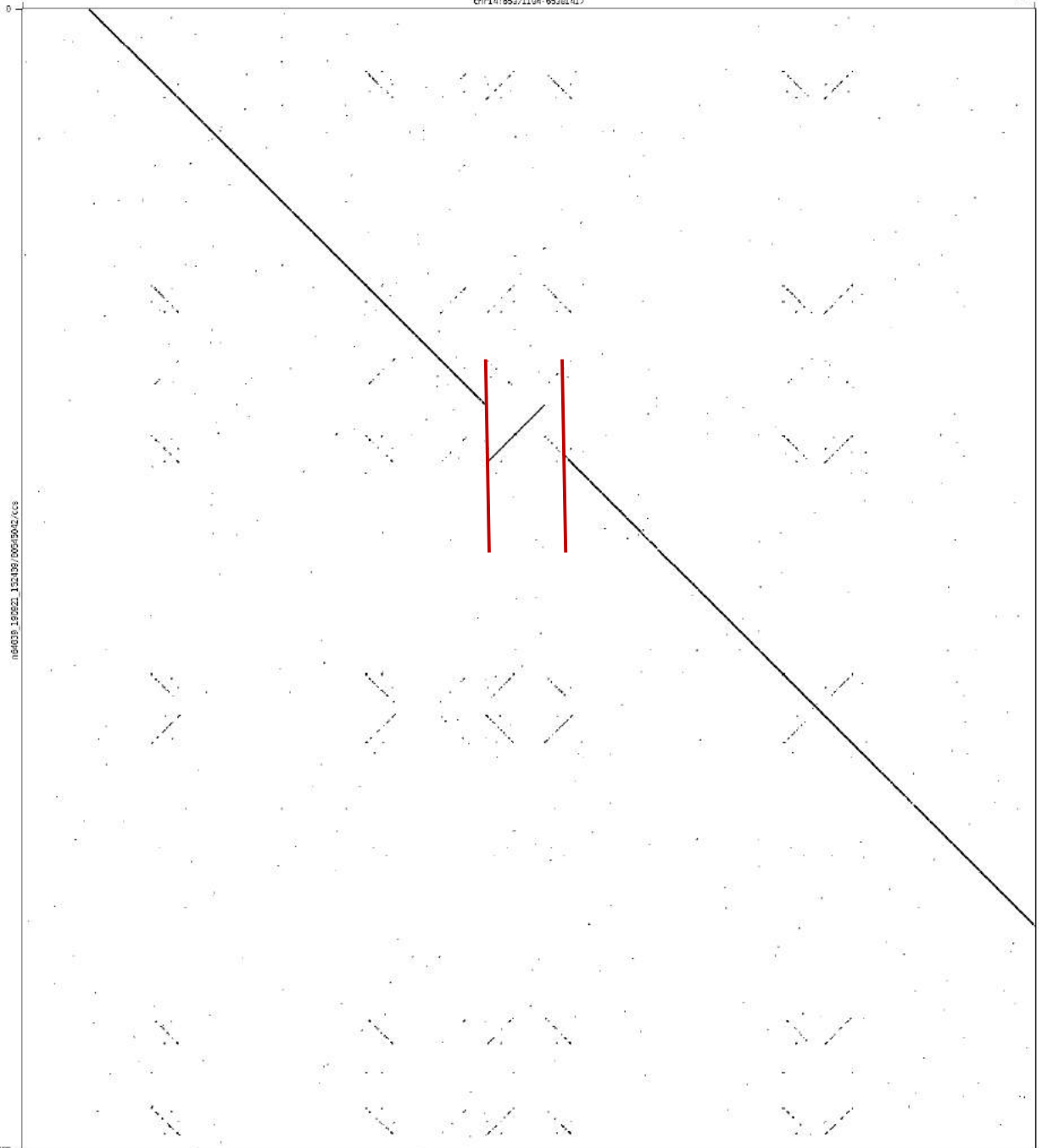




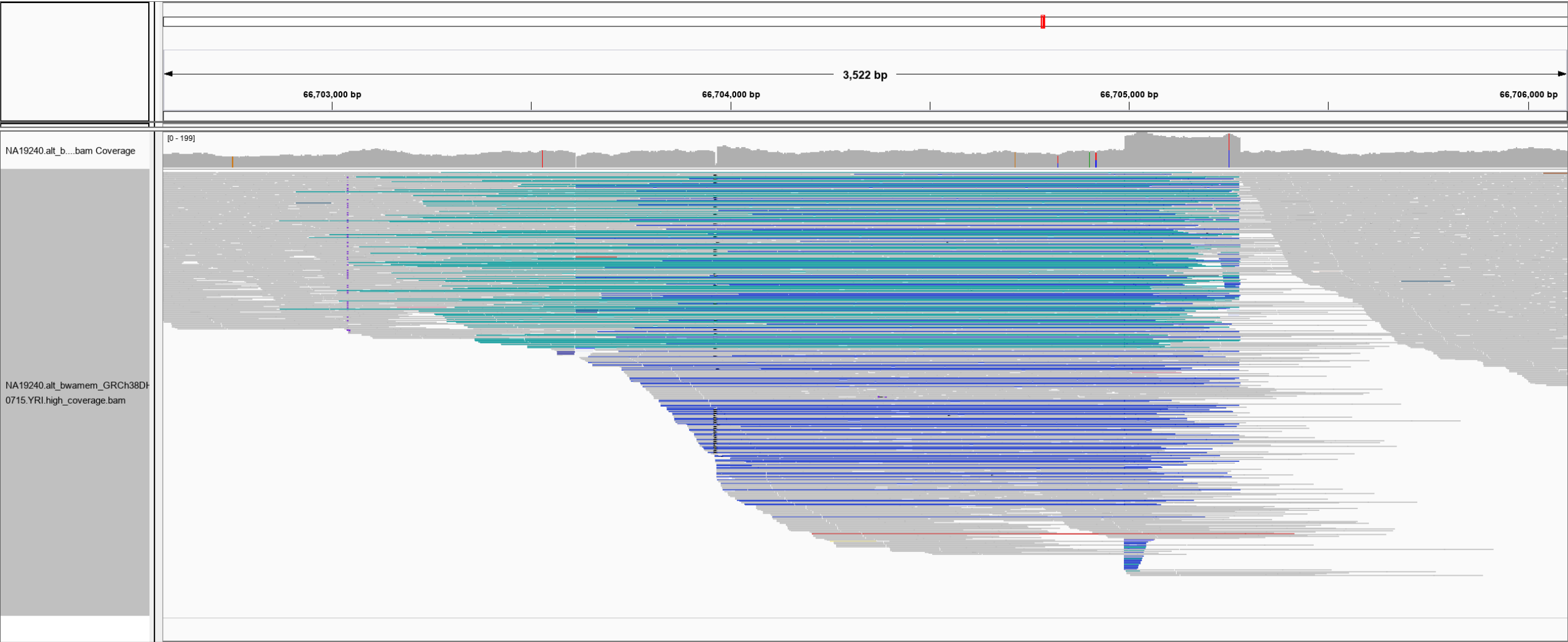


chr14:65375854-65376595

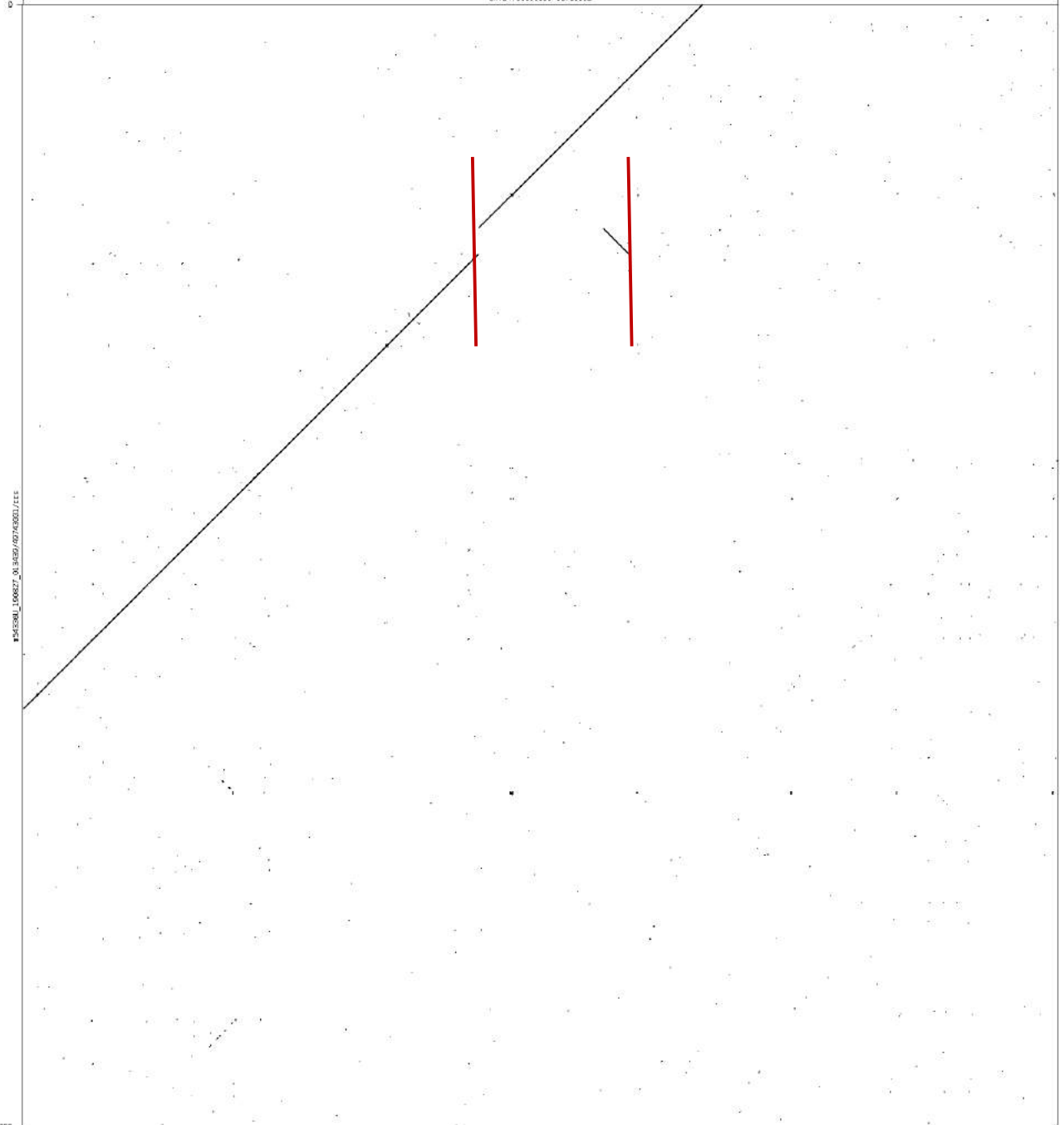




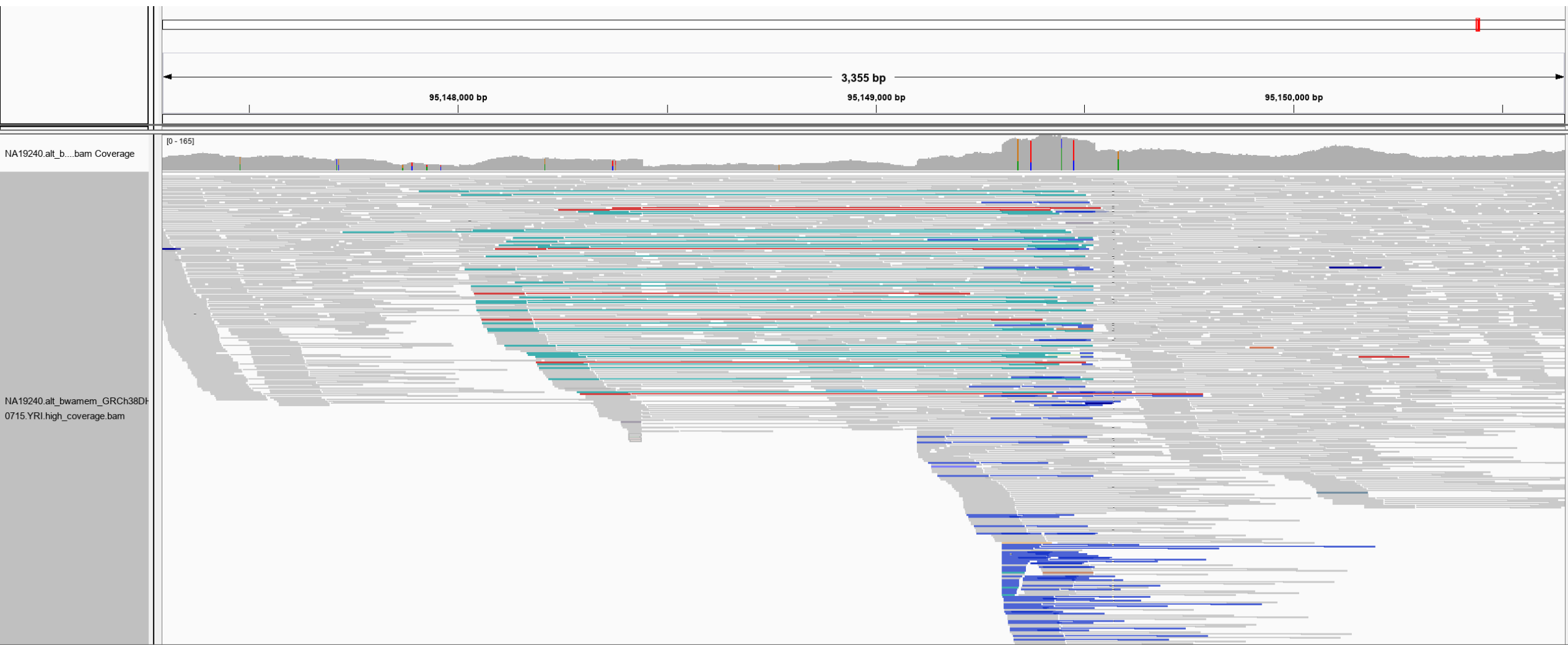
chr14:66703613-66705301

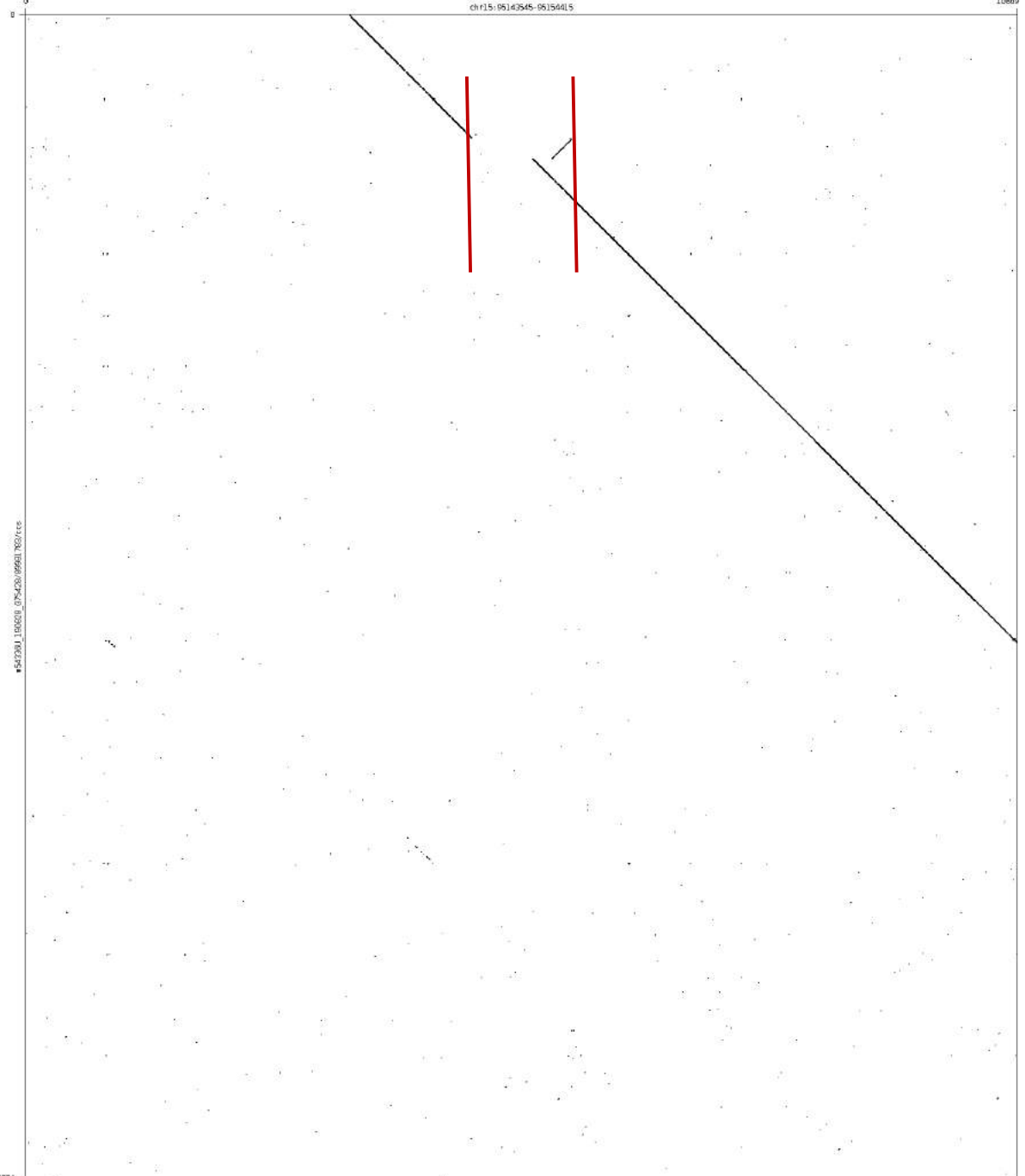


#543081\_100227\_012426/48743881/ccs

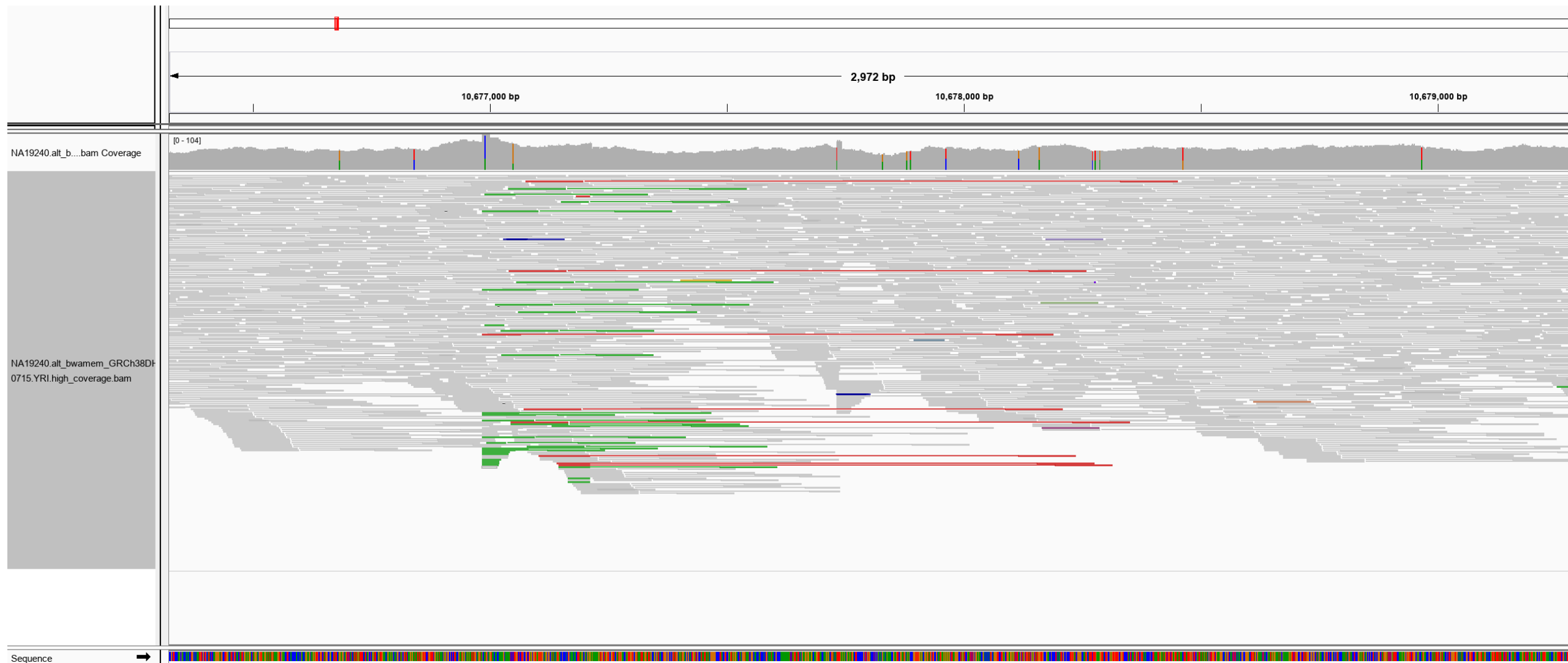


chr15:95148441-95149540

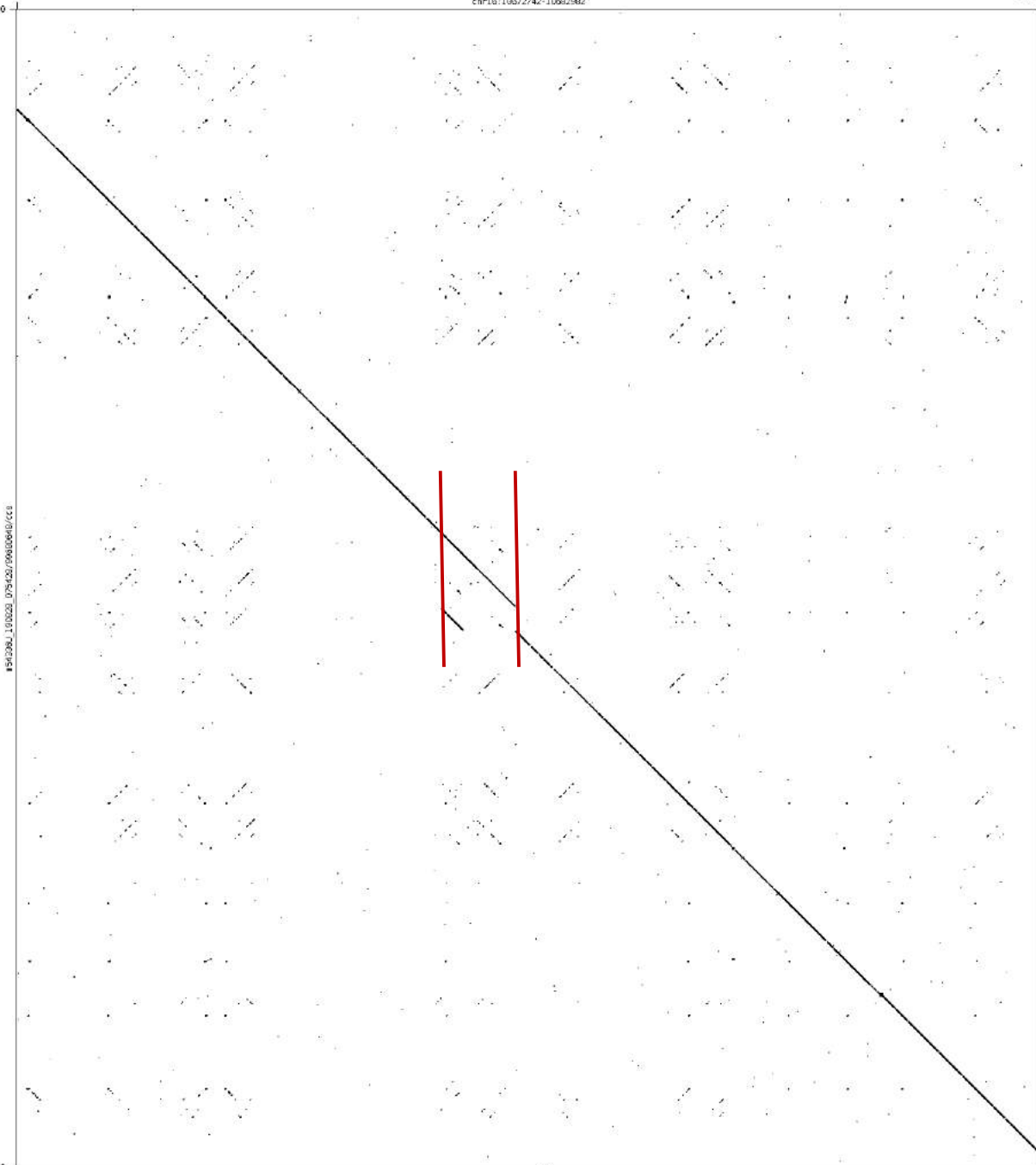




chr16:10676974-10677779



#14338U\_100028\_075428/00880048/CC





chr16:69727929-69728986



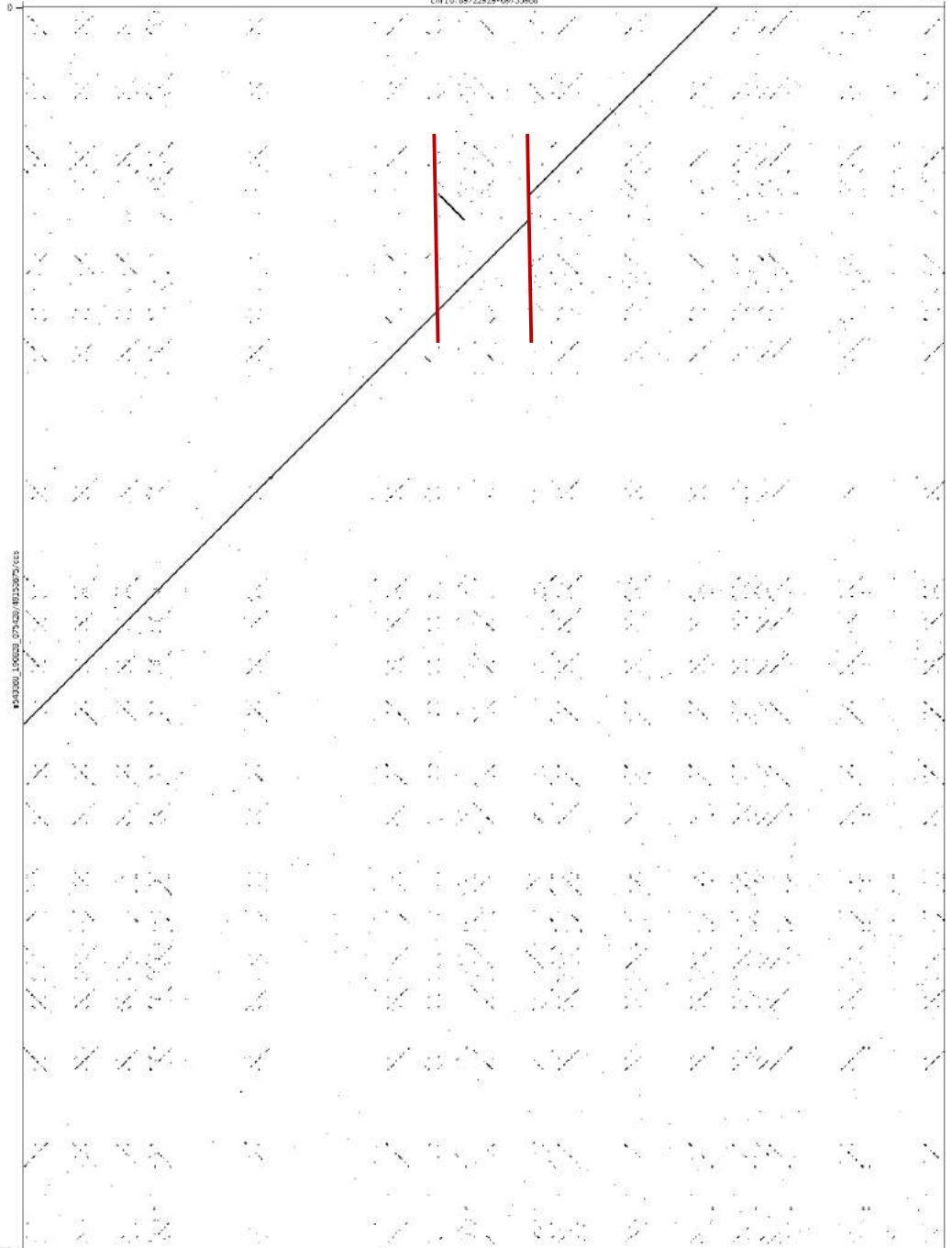
chr16:69722828-69733906 vs. s9433611\_140620\_079406/40153675/ccc  
Zelen: 0 / 1 GC ratio seq1: 0.4694  
Word length: 10 GC ratio seq2: 0.4839  
Window size: 0  
Matrix: edna.mat Program: Gapped (1.43 final)  
g

chr16:69722828-69733906

11096

s9433611\_140620\_079406/40153675/ccc

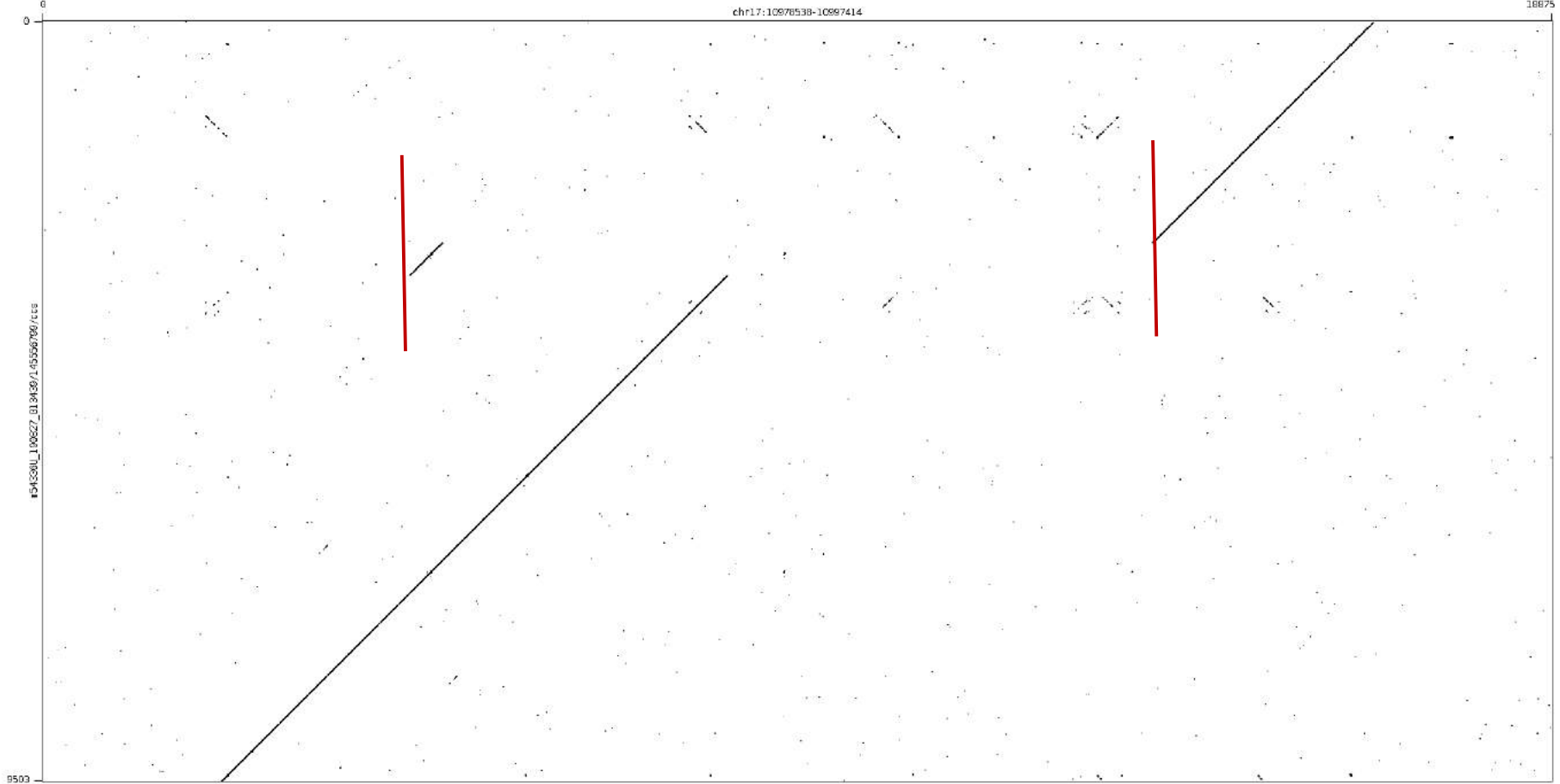
14935



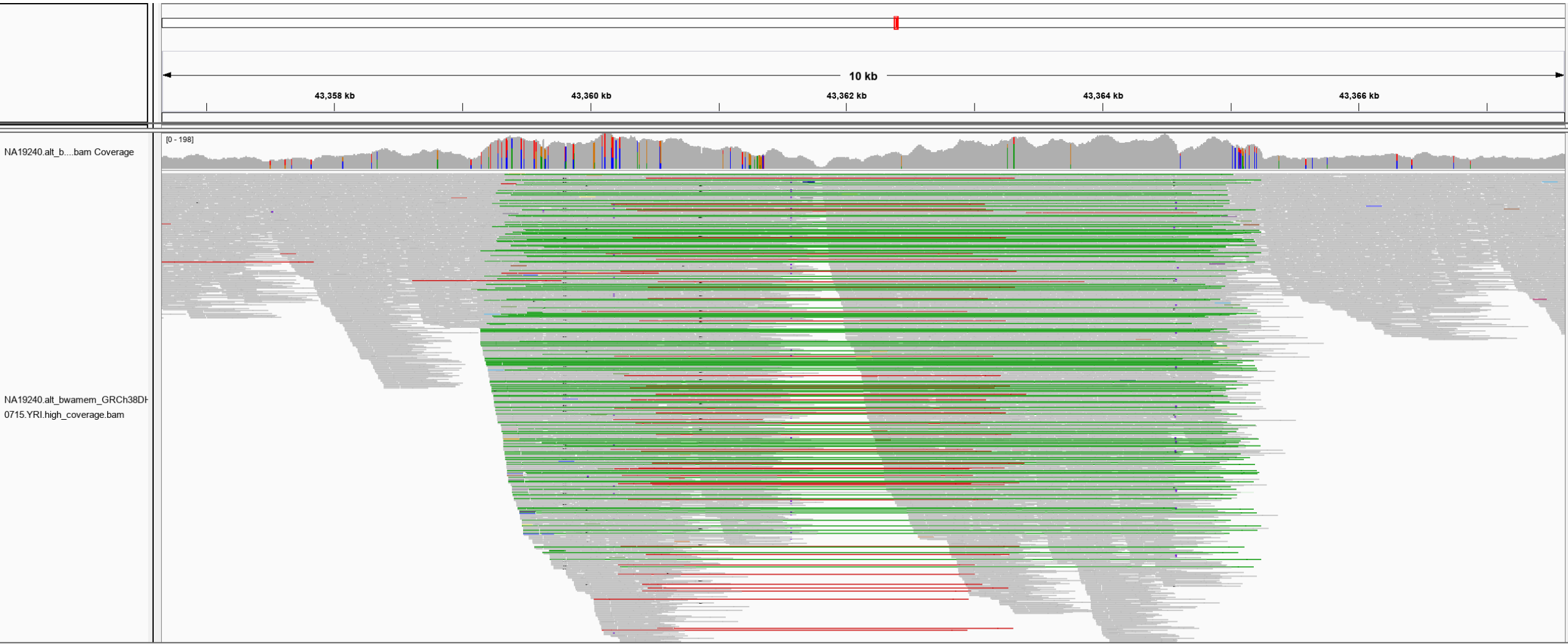
chr17:10983538-10992414



chr17:10976539-10997414 vs. #54336U\_190027\_013436/145556769/ctg  
Zoom: 10 : 1  
Word length: 10 GC ratio seq1: 0.4548  
Window size: 0 GC ratio seq2: 0.4367  
Matrix: edna.mat Program: Gepard (1.40 final)



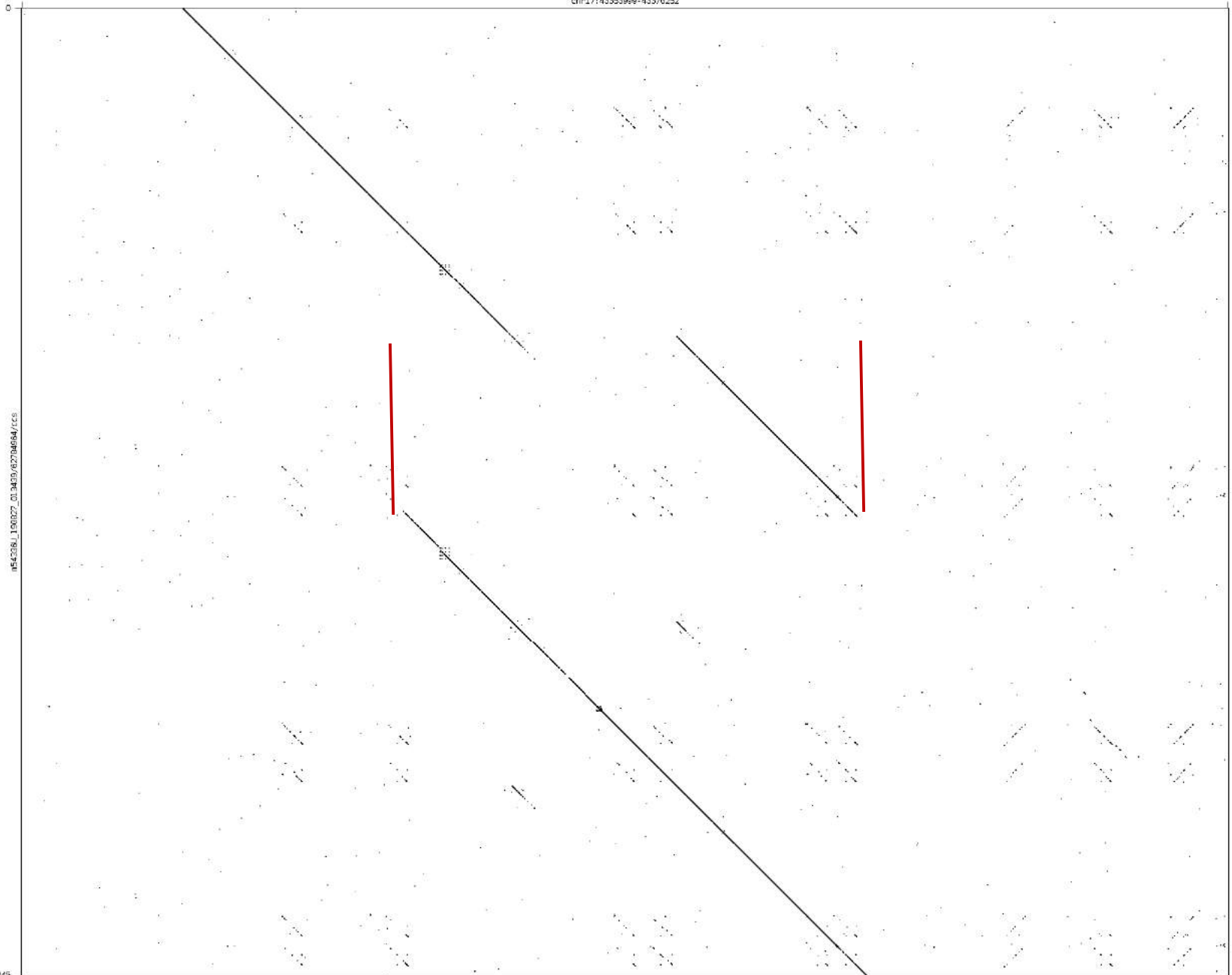
chr17:43358999-43365252



chr17:43353999-43370252 vs. n543381\_190027\_013439/62704664/ccs  
Zoom: 9: 1 GC ratio seq1: 0.4776  
Word length: 10 GC ratio seq2: 0.4773  
Window size: 0  
Matrix: edna.mat Program: Uepard (1.40 final)

chr17:43353999-43370252

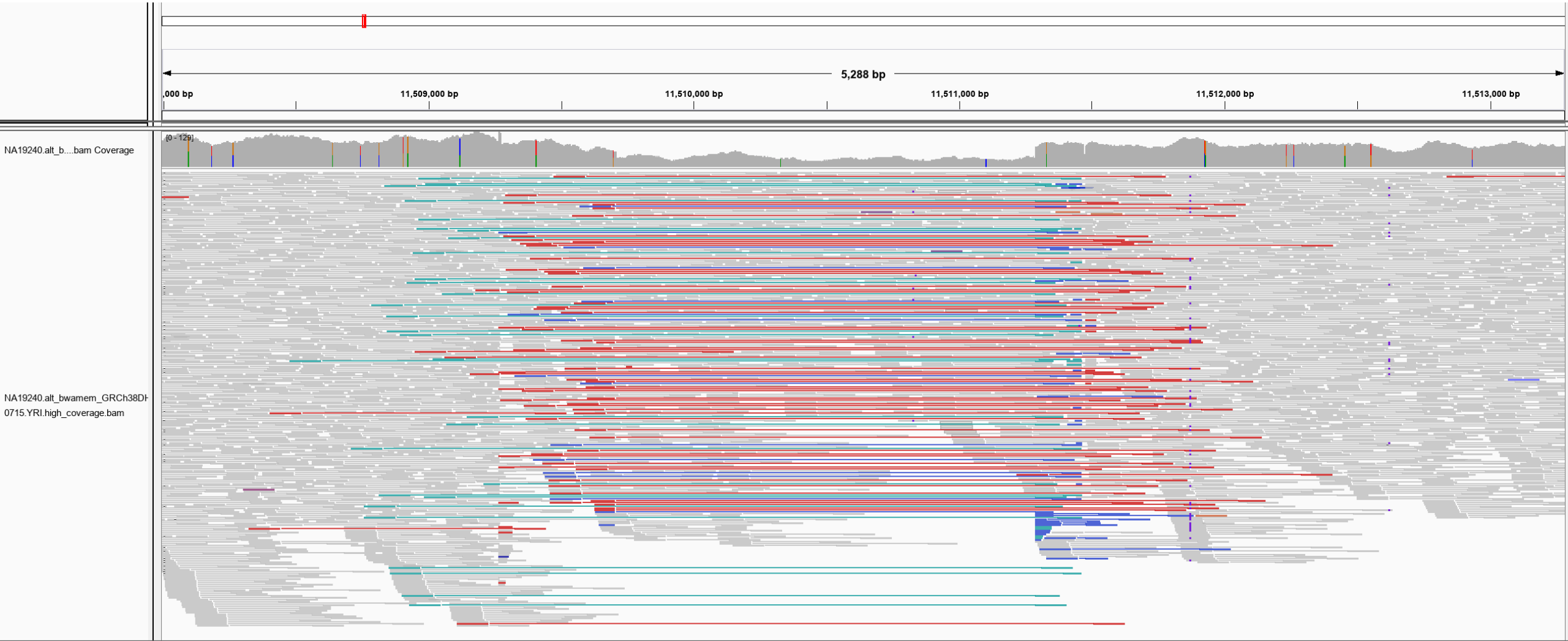
16250

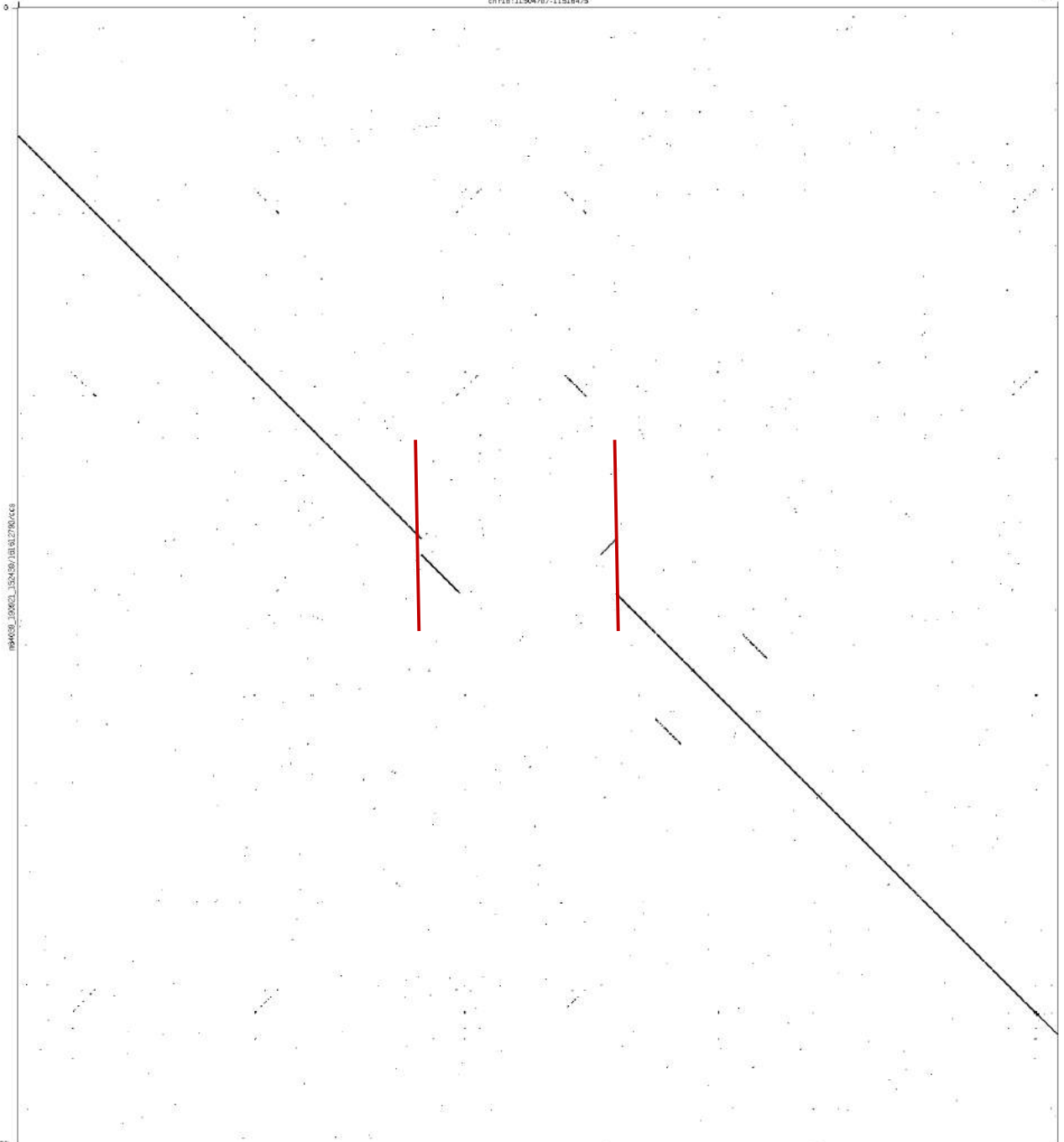


n543381\_190027\_013439/62704664/ccs

13645

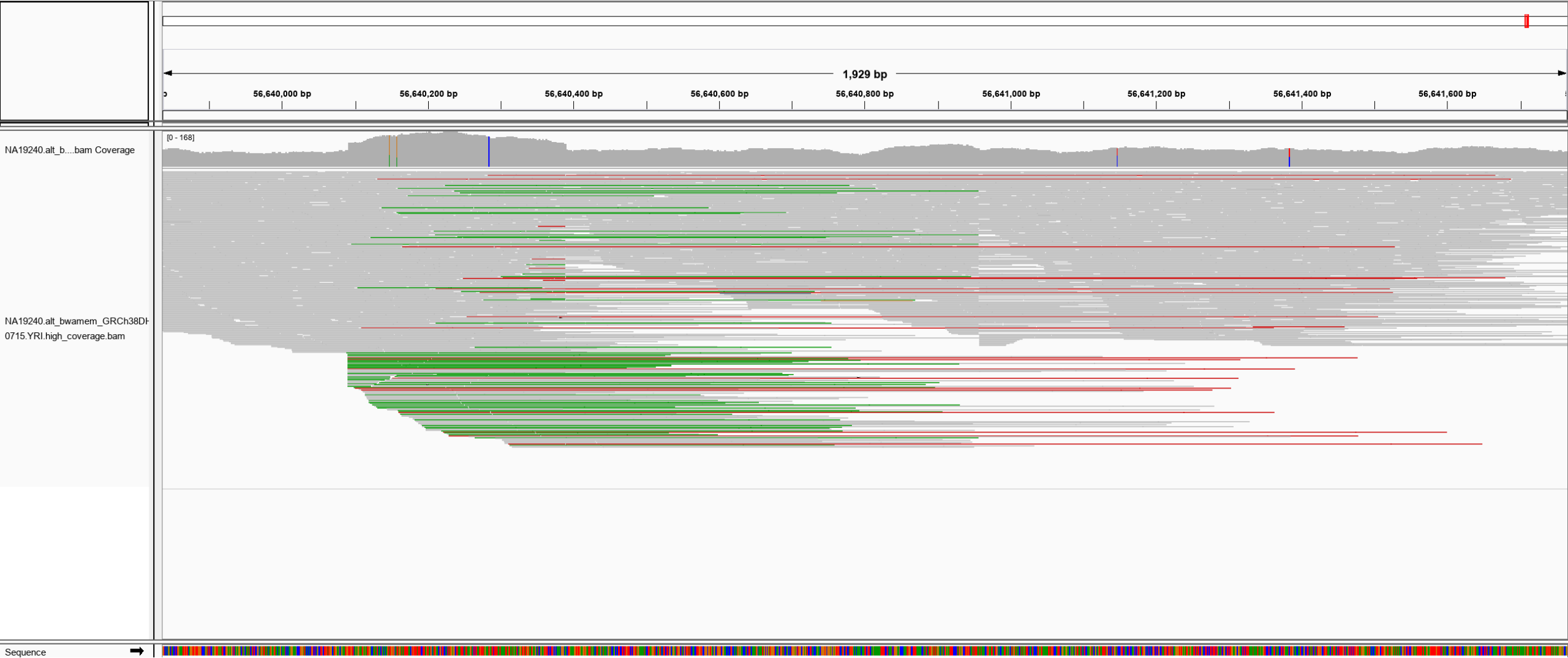
chr18:11509284-11513469



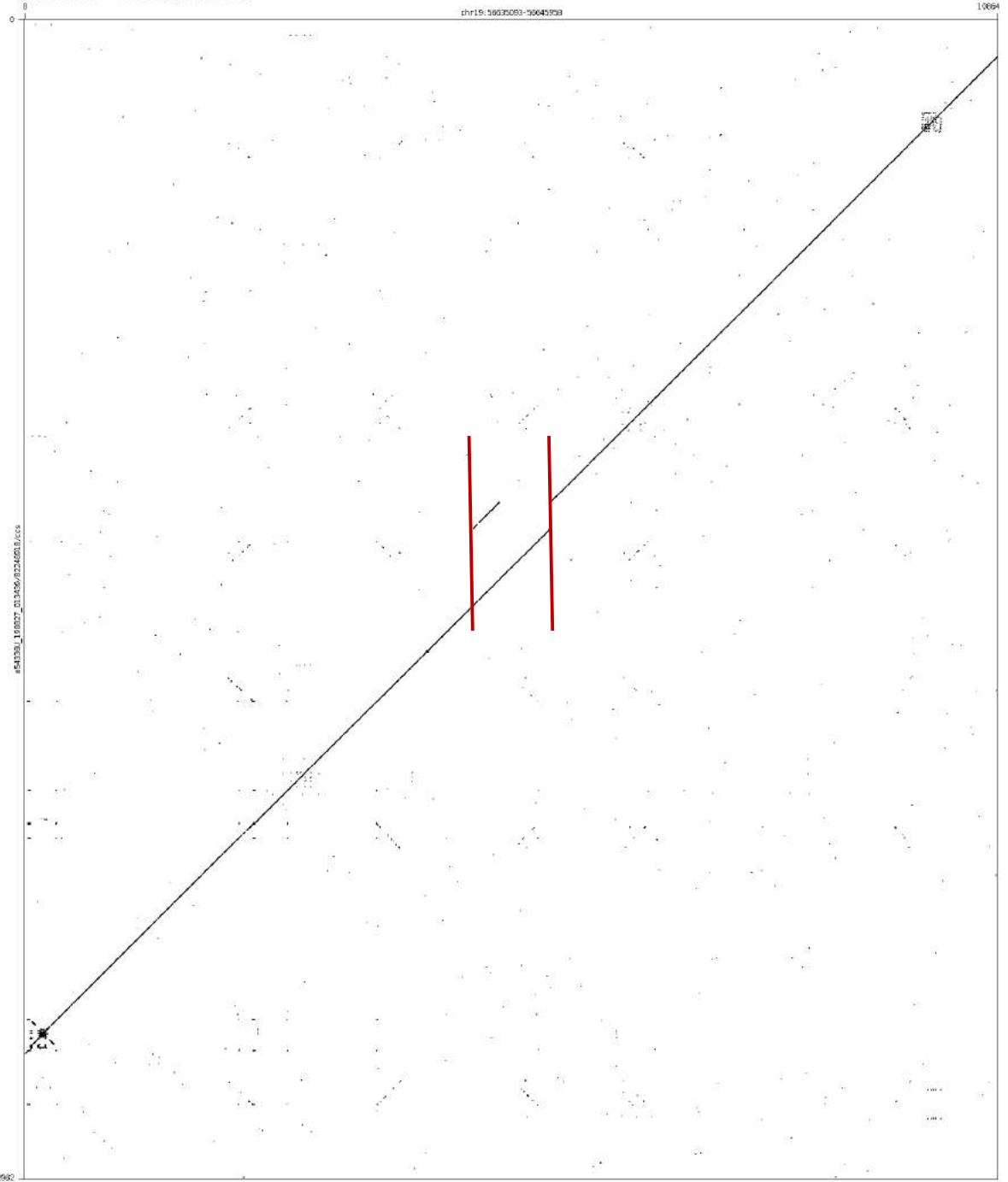




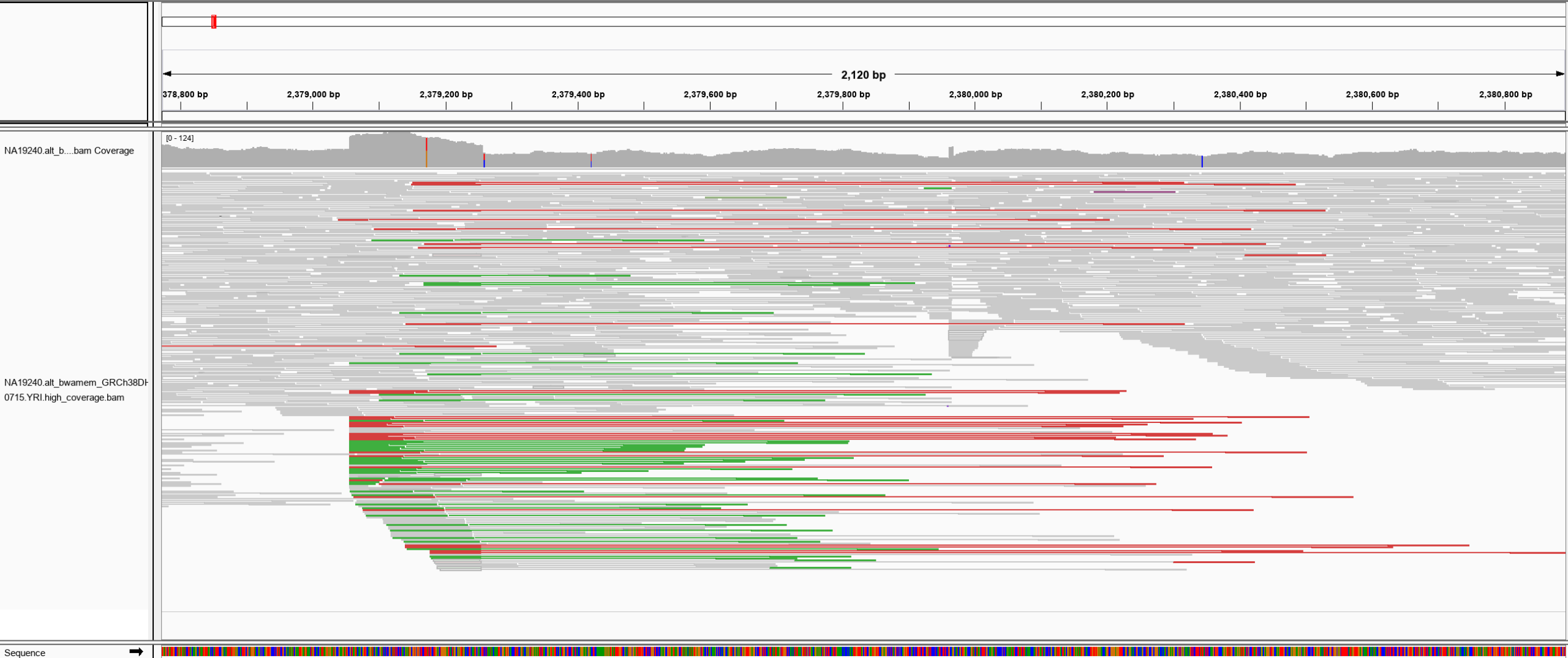
chr19:56640093-56640958

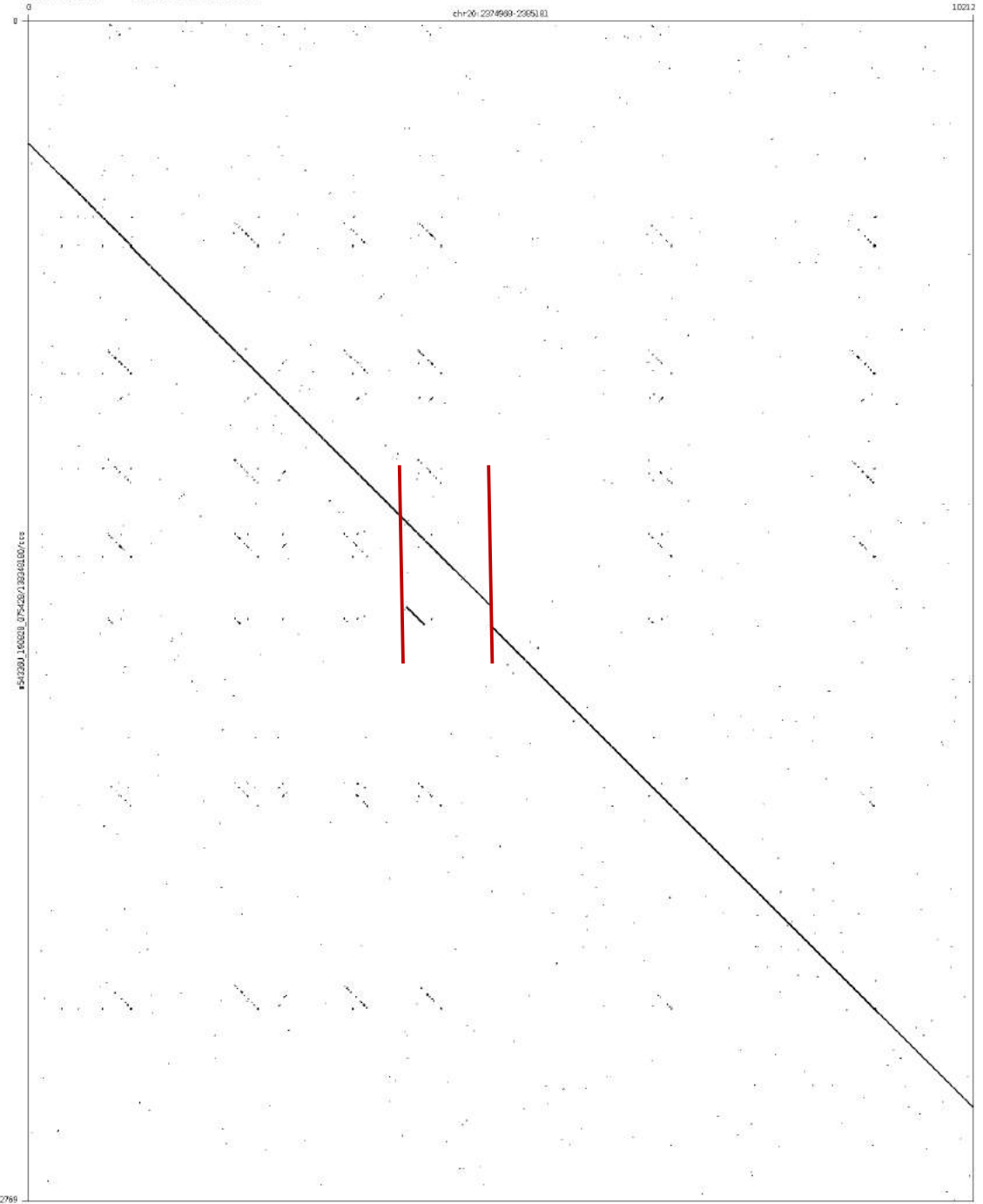


chr19:5905989-5964960 vs. #543391\_190927\_013436/82246818/acc  
Zone: 7: 1 OC ratio seq1: 0.4018  
Window length: 10 OC ratio seq2: 0.4934  
Window size: 0  
Metric: adhe-est Program: bedmap (1.40 f3net)

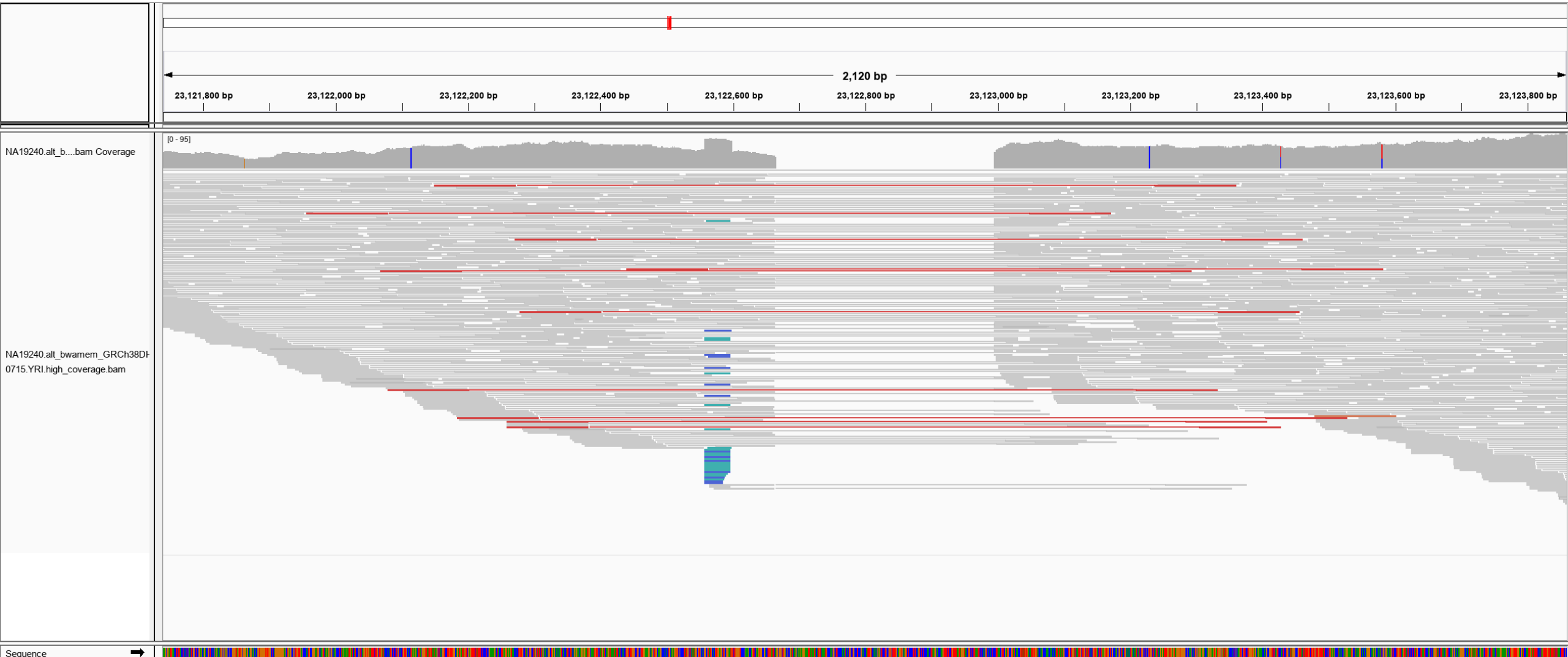


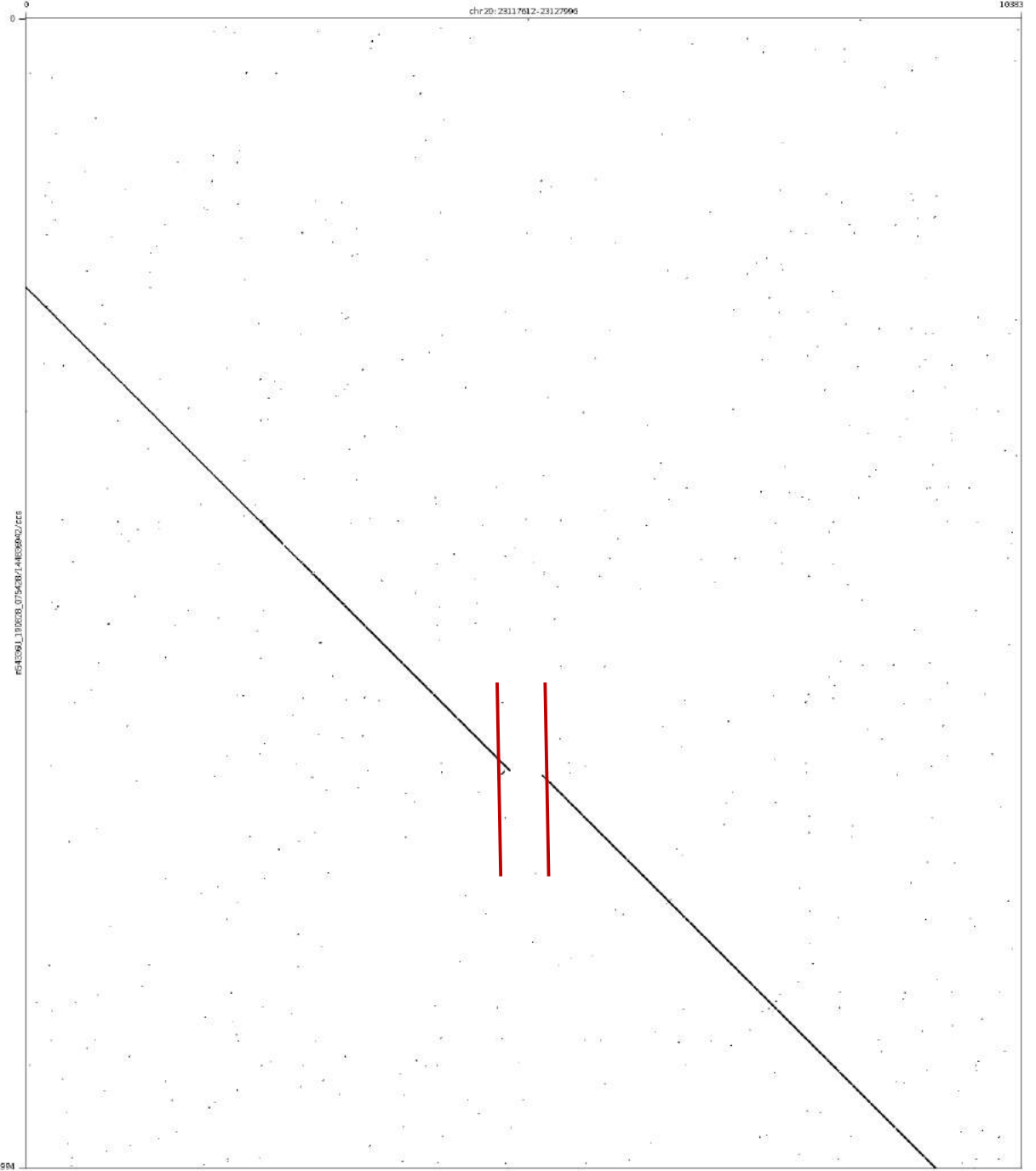
chr20:2379153-2379968



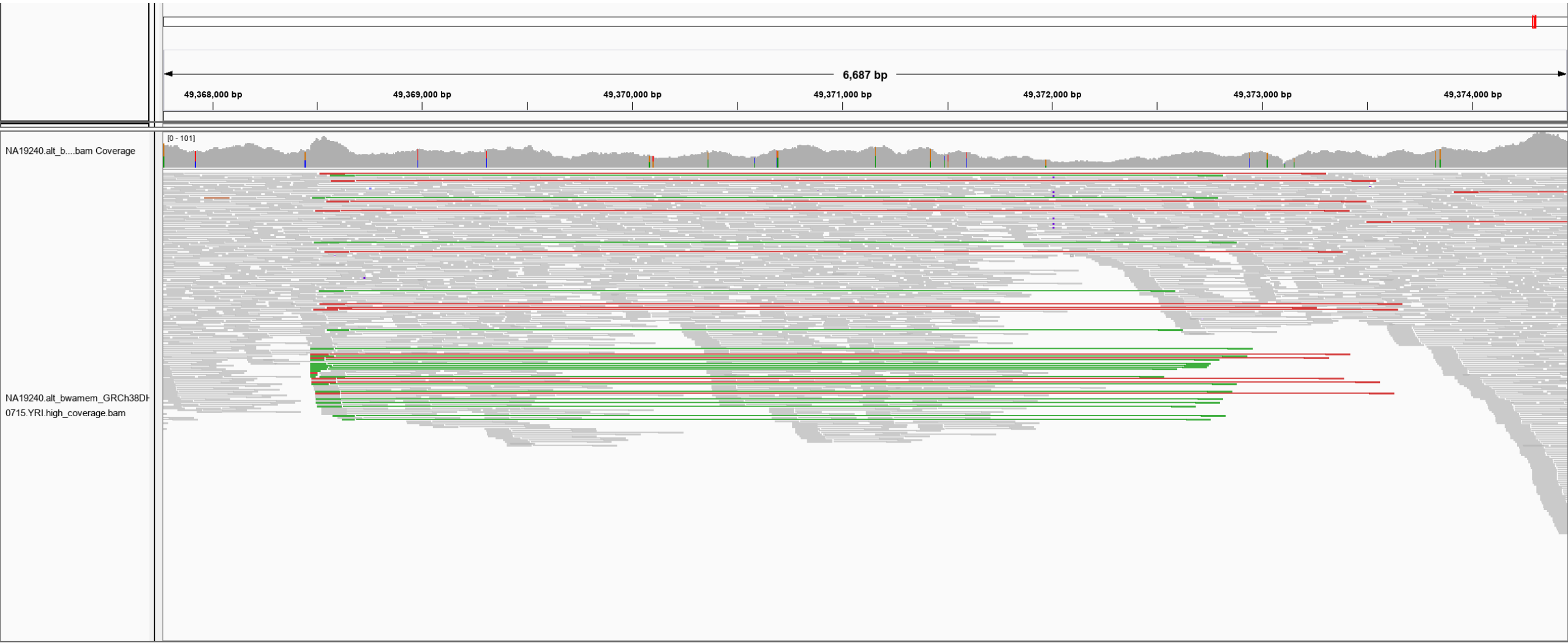


chr20:23122542-23122996

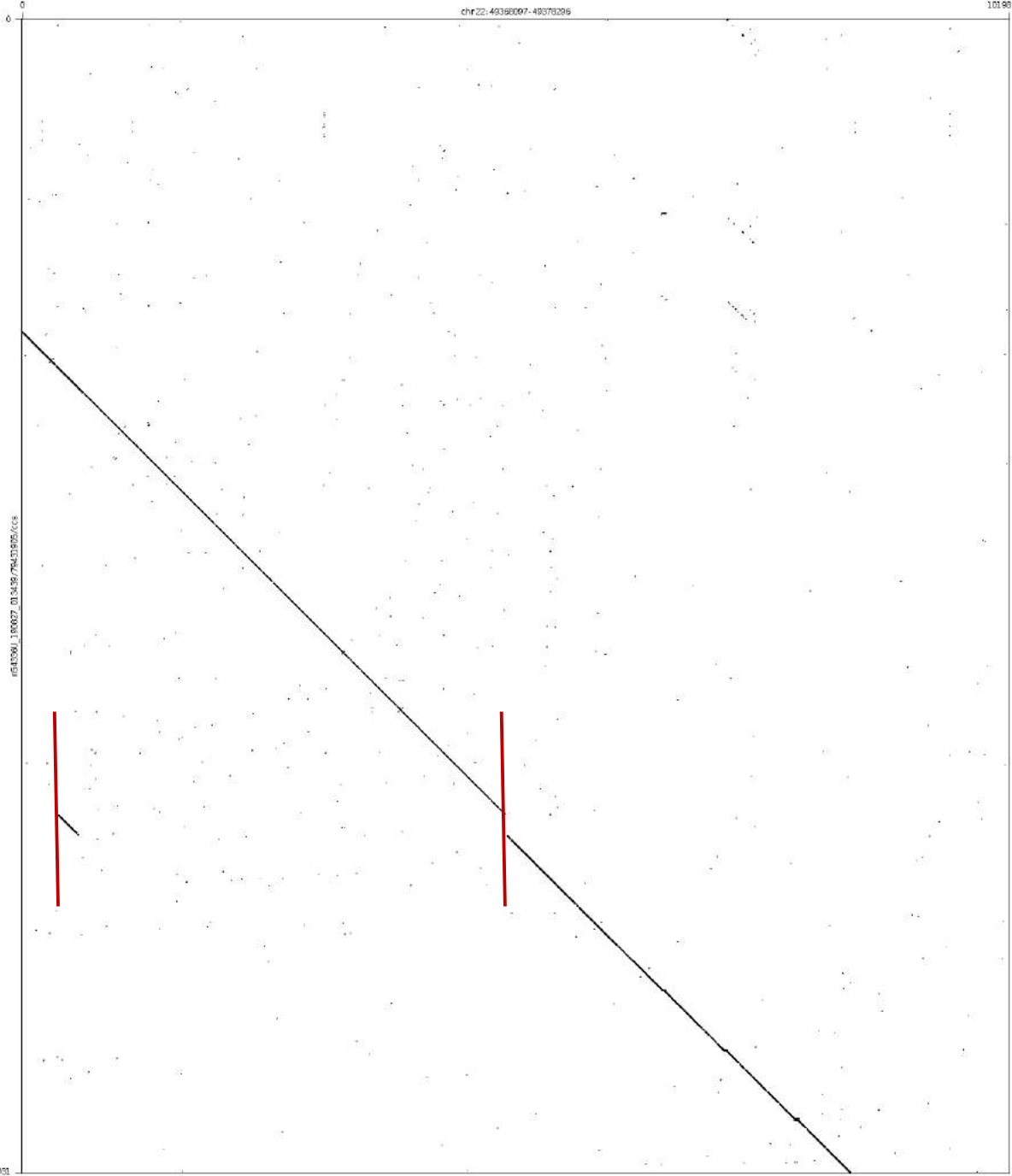




chr22:49368449-49373094



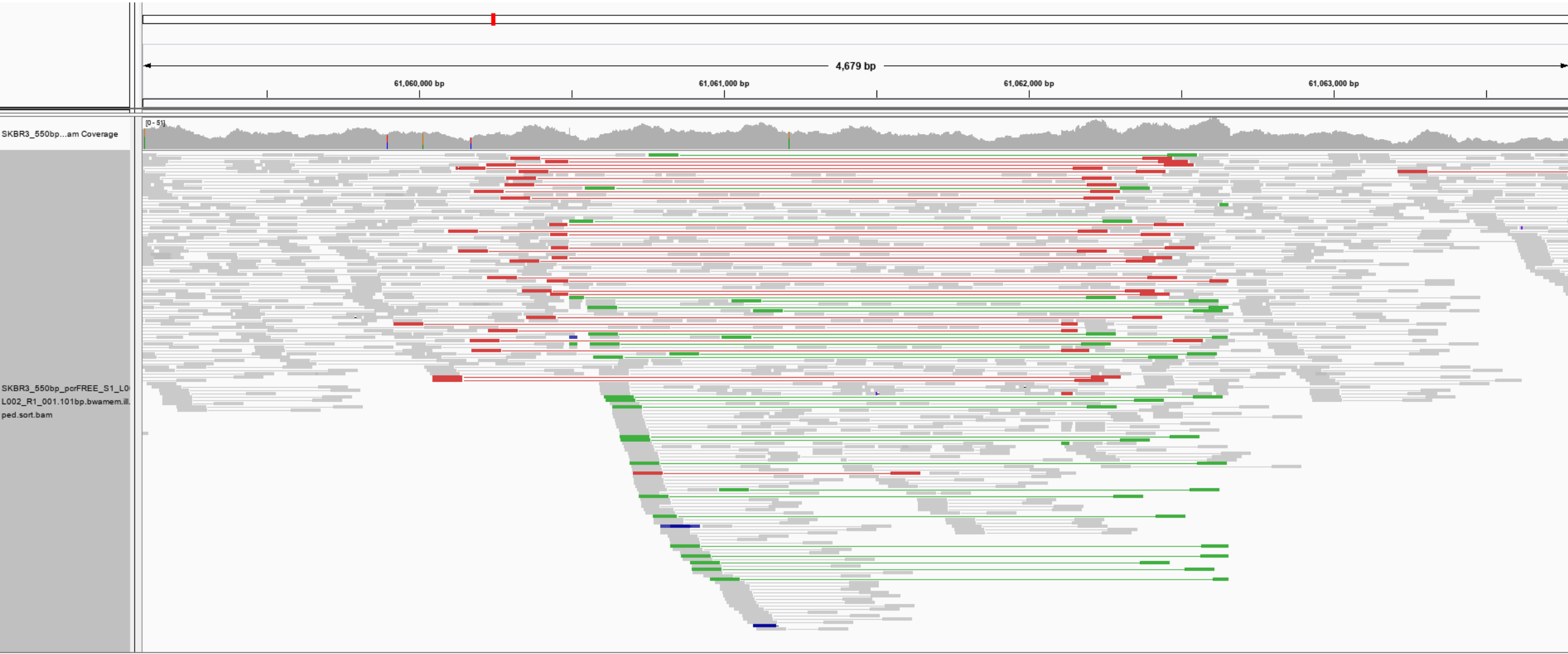
chr22:4936067-4937026 vs. s543981198827\_013436/79421505/ccs  
Zoom: 7 : 1  
Word length: 10 GC ratio seq1: 0.5177  
Window size: 0 GC ratio seq2: 0.5391  
Matrix: edna.net Program: Cejard (1.00 final)





SK-BR-3 benchmark CSVs

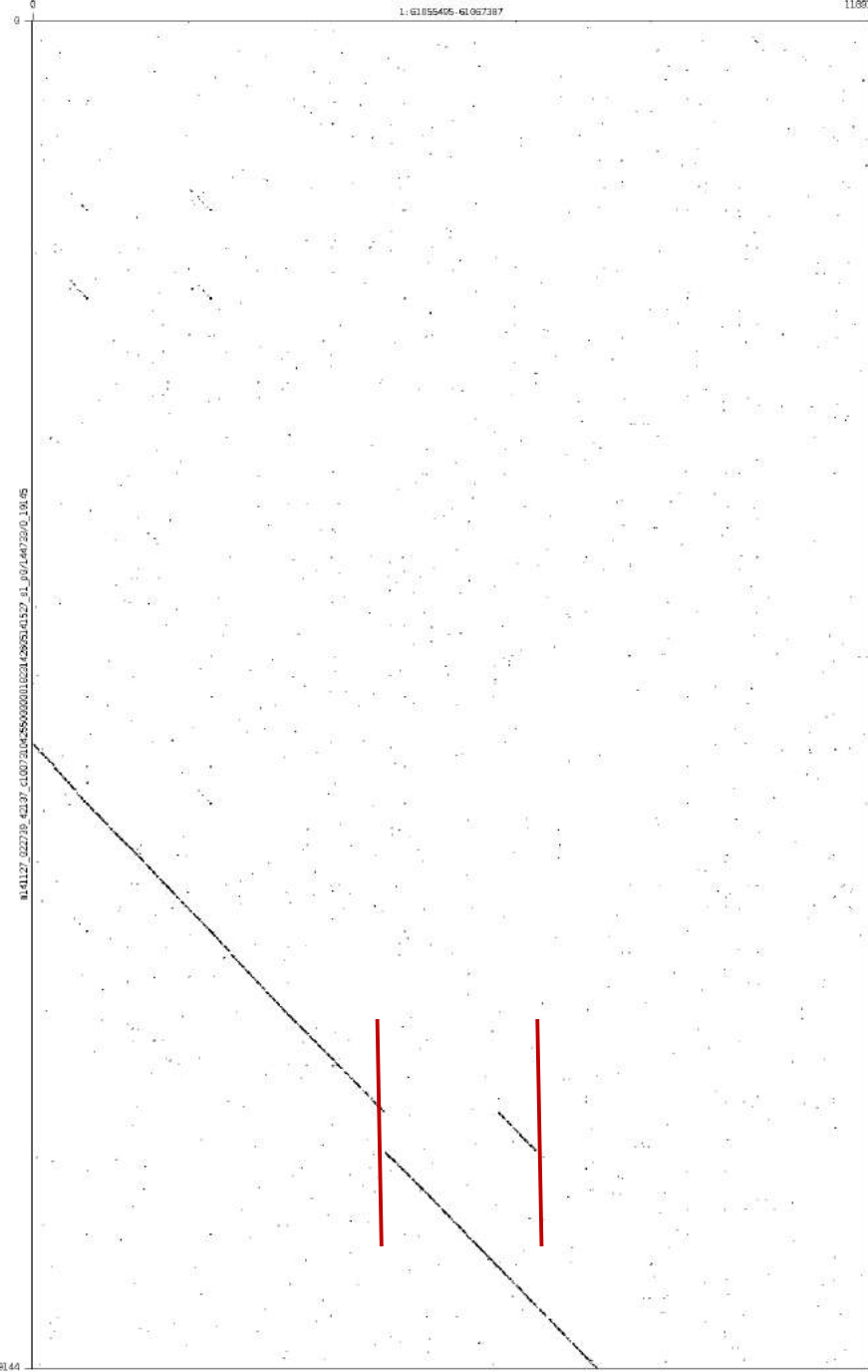
chr1:61060495-61062387



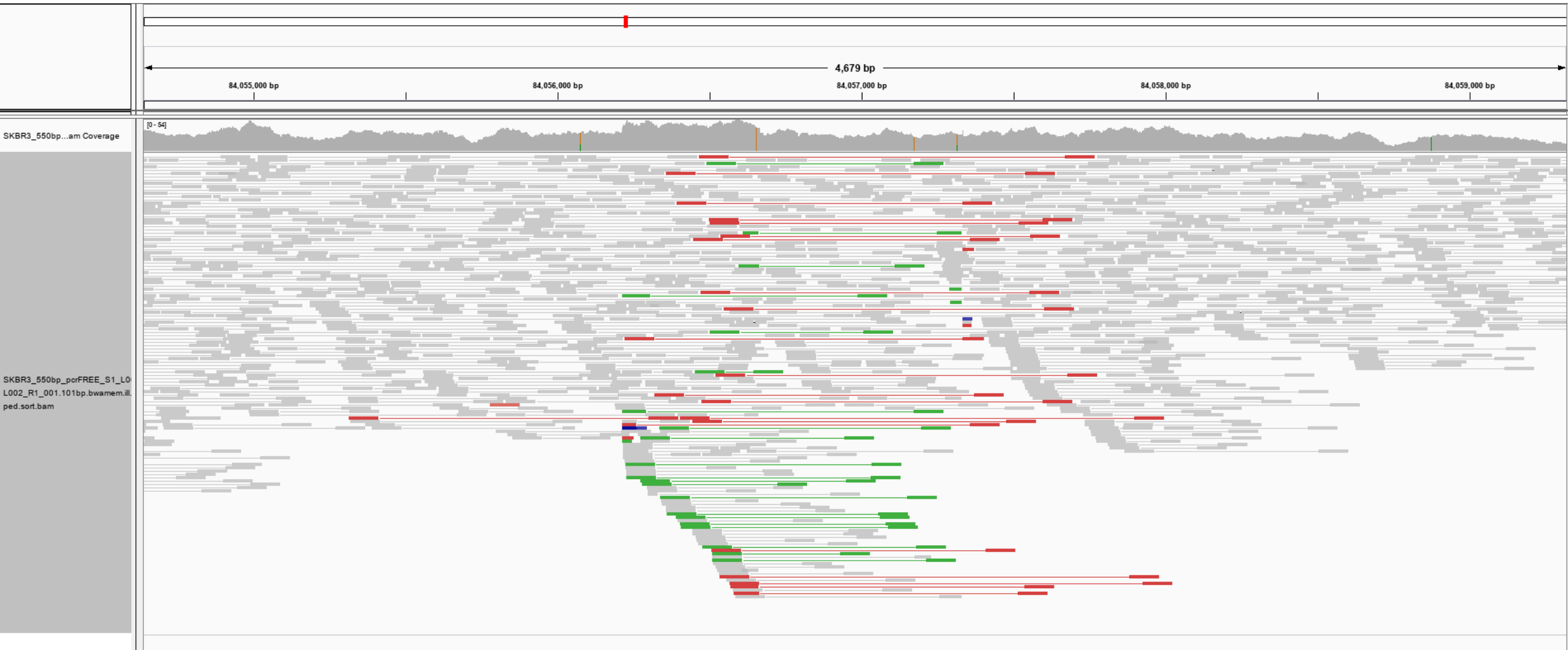
SKBR3\_550bp...am Coverage

SKBR3\_550bp\_perFREE\_S1\_L0  
L002\_R1\_001.101bp.bwamem.ill.  
ped.sort.bam

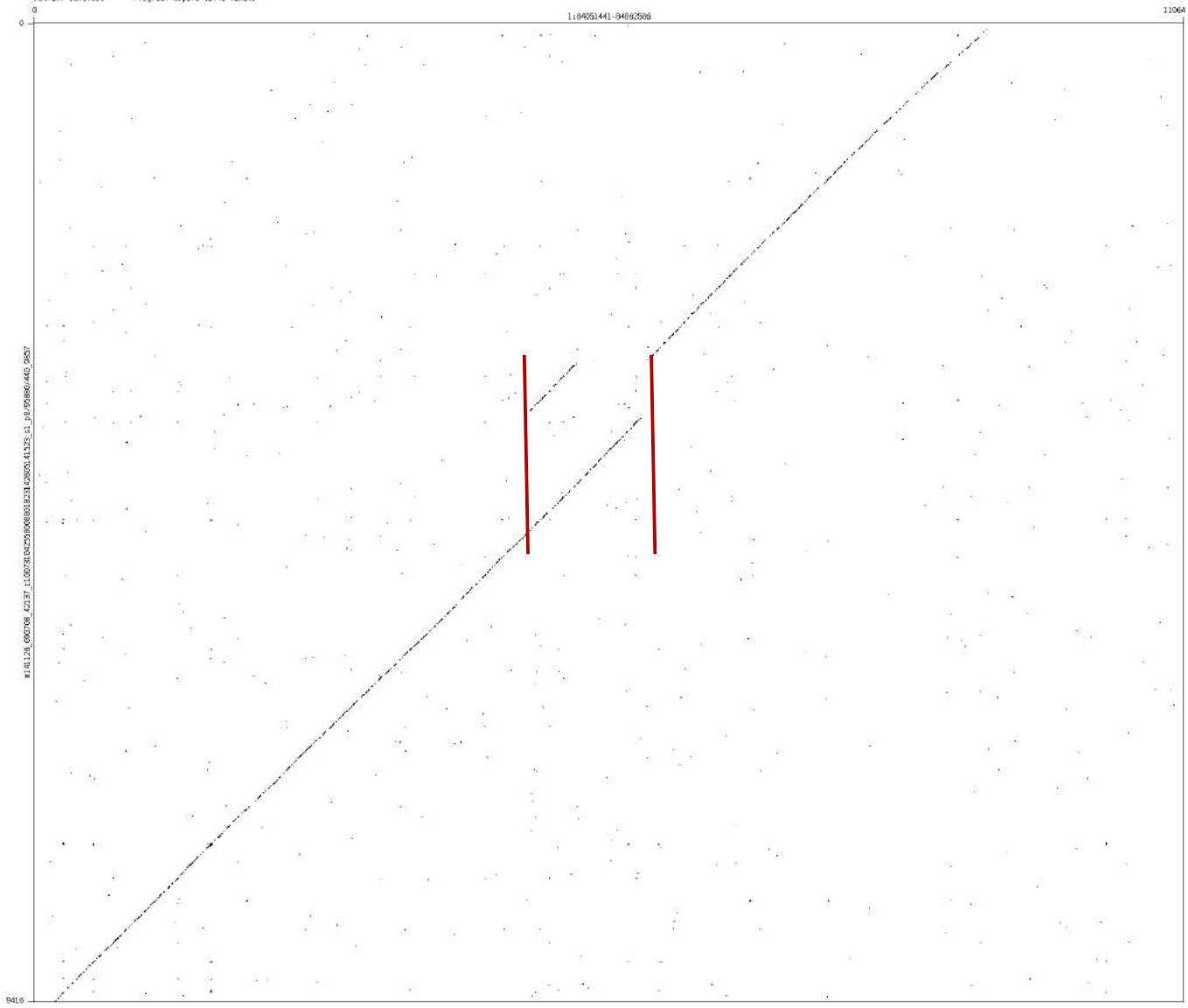
1.G1055465-61.067387 vs. s141127\_022739\_42137\_c10079104255000001023142605141527\_s1\_p0/144739/0\_16145  
Zoom: 11 1:1 GC ratio seq1: 0.3514  
Word length: 10 GC ratio seq2: 0.3896  
Window size: 0  
Matrix: edna.est Program: Gpad [1.40 final]



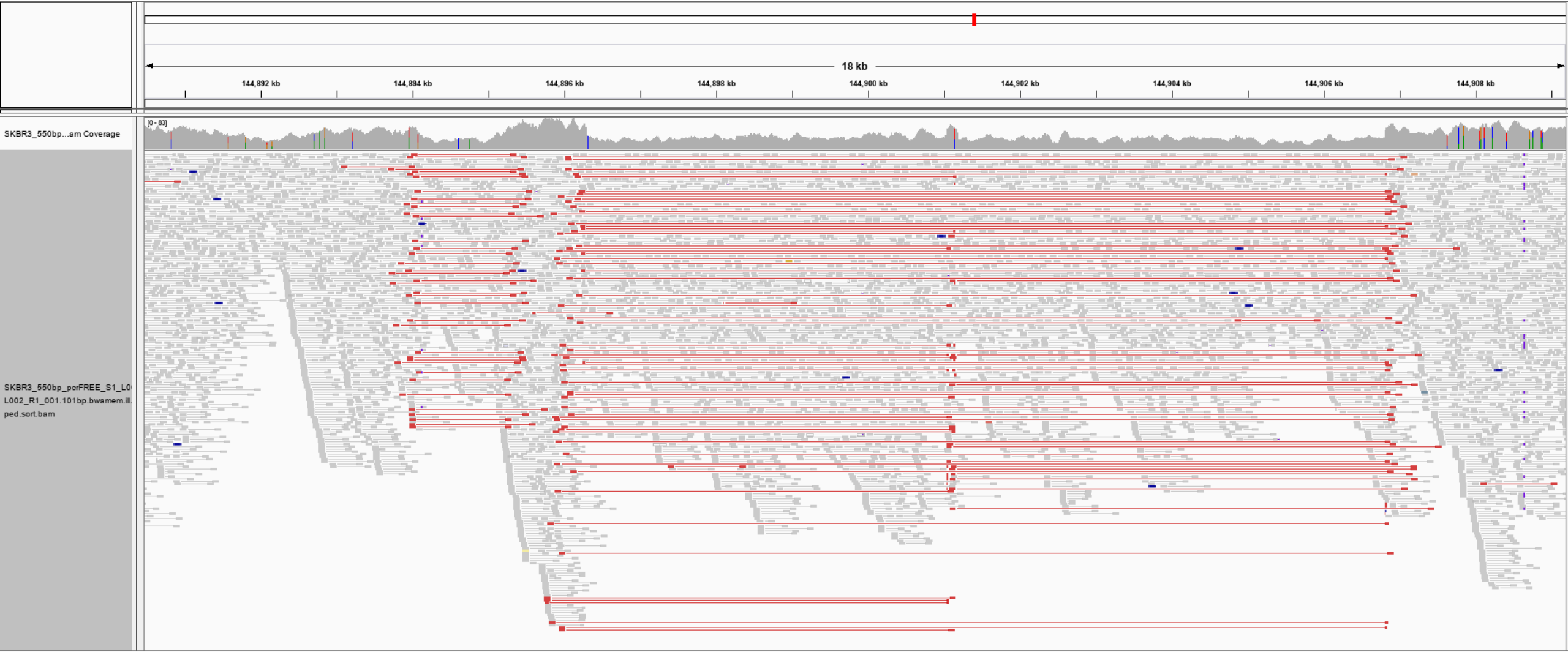
chr1:84056441-84057506



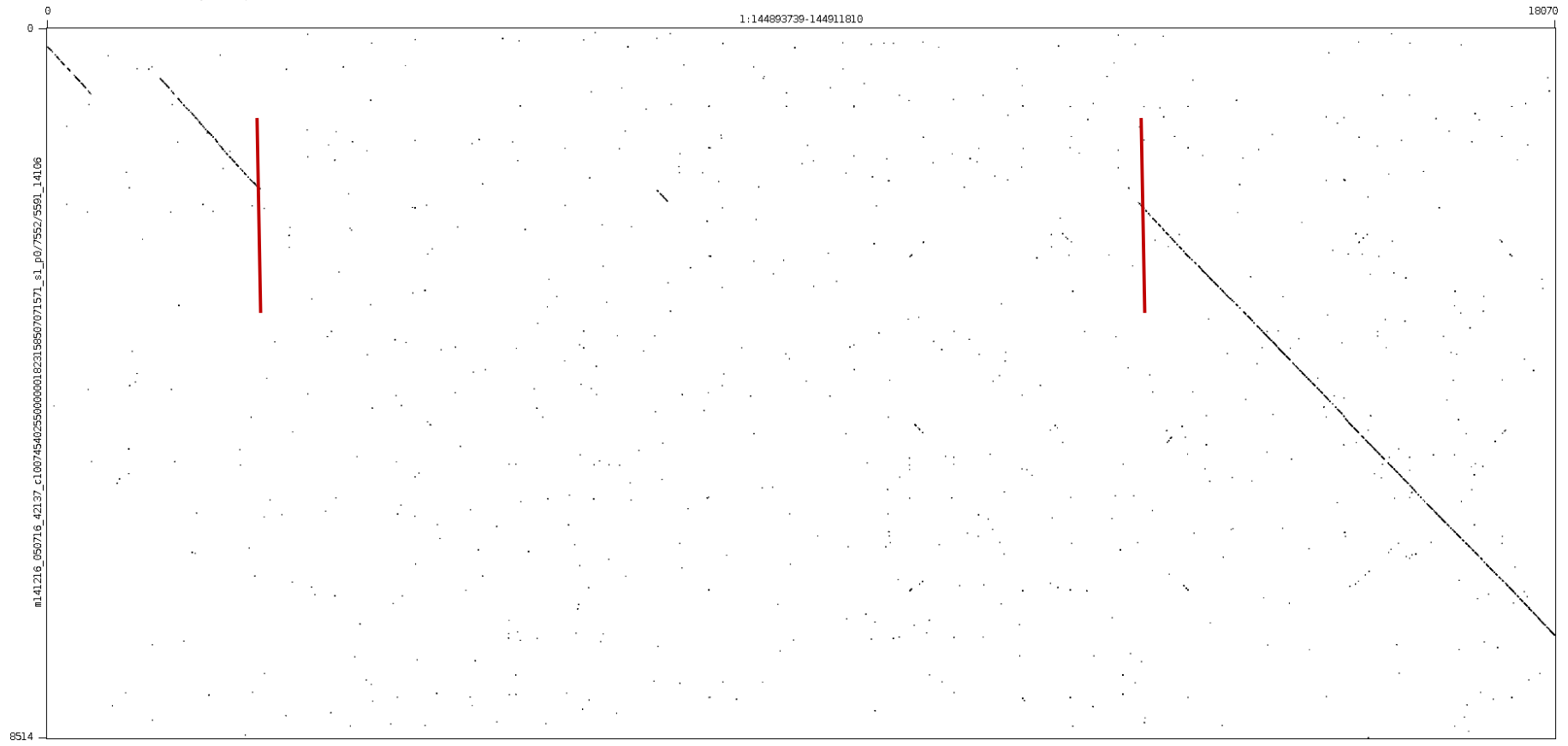
1:84051441-94892588 vs. #141128\_890789\_42137\_c10079304259080001823142695141529\_s1\_p0/95880/440\_9857  
Zick: 0 : 1 GC ratio seq1: 0.3674  
word length: 20 GC ratio seq2: 0.3595  
Window size: 0  
Matrix: odia.mat Program: Gopard (1.40 final)



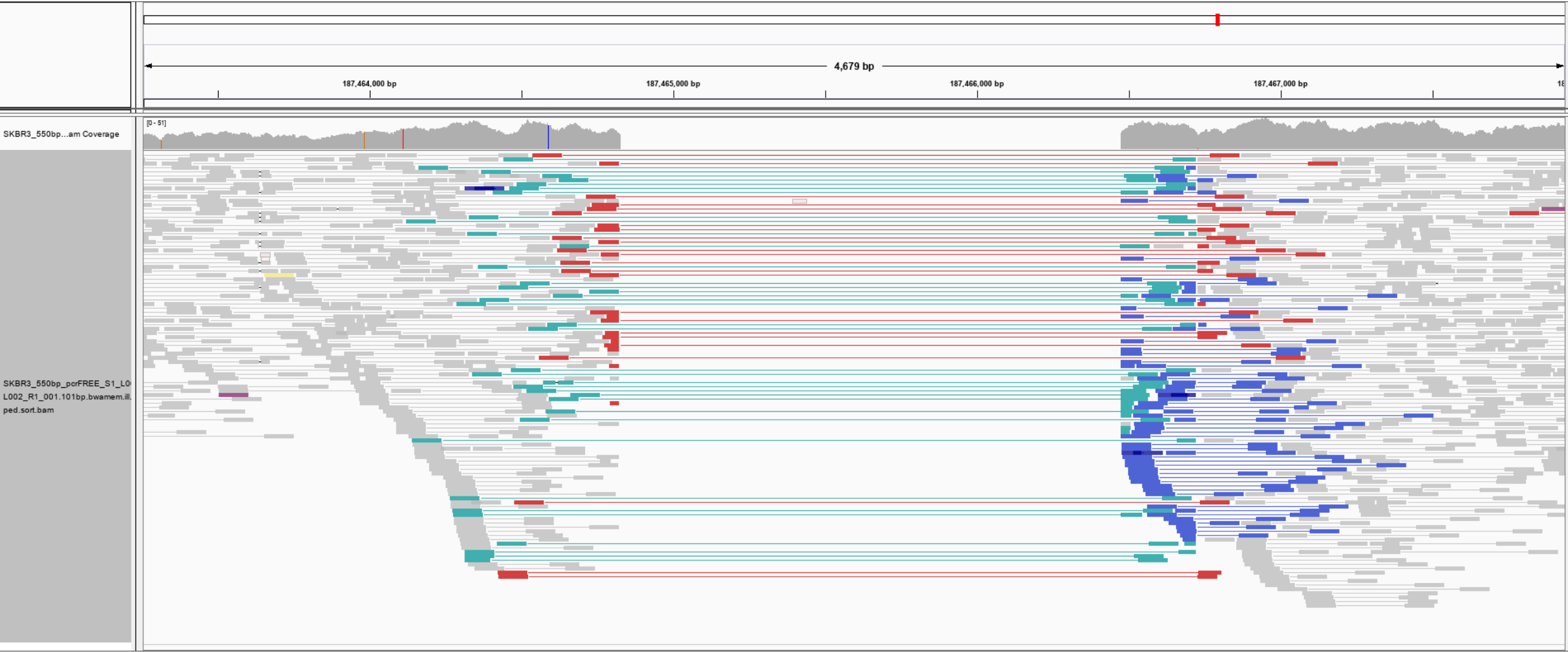
chr1:144898739-144906810



1:144893739-144911810 vs. m141216\_050716\_42137\_c10074540255000001823158507071571\_sl\_p0/7552/5591\_14106  
Zoom: 10 : 1  
Word length: 10 GC ratio seq1: 0.3732  
Window size: 0 GC ratio seq2: 0.3645  
Matrix: edna.mat Program: Gepard (1.40 final)

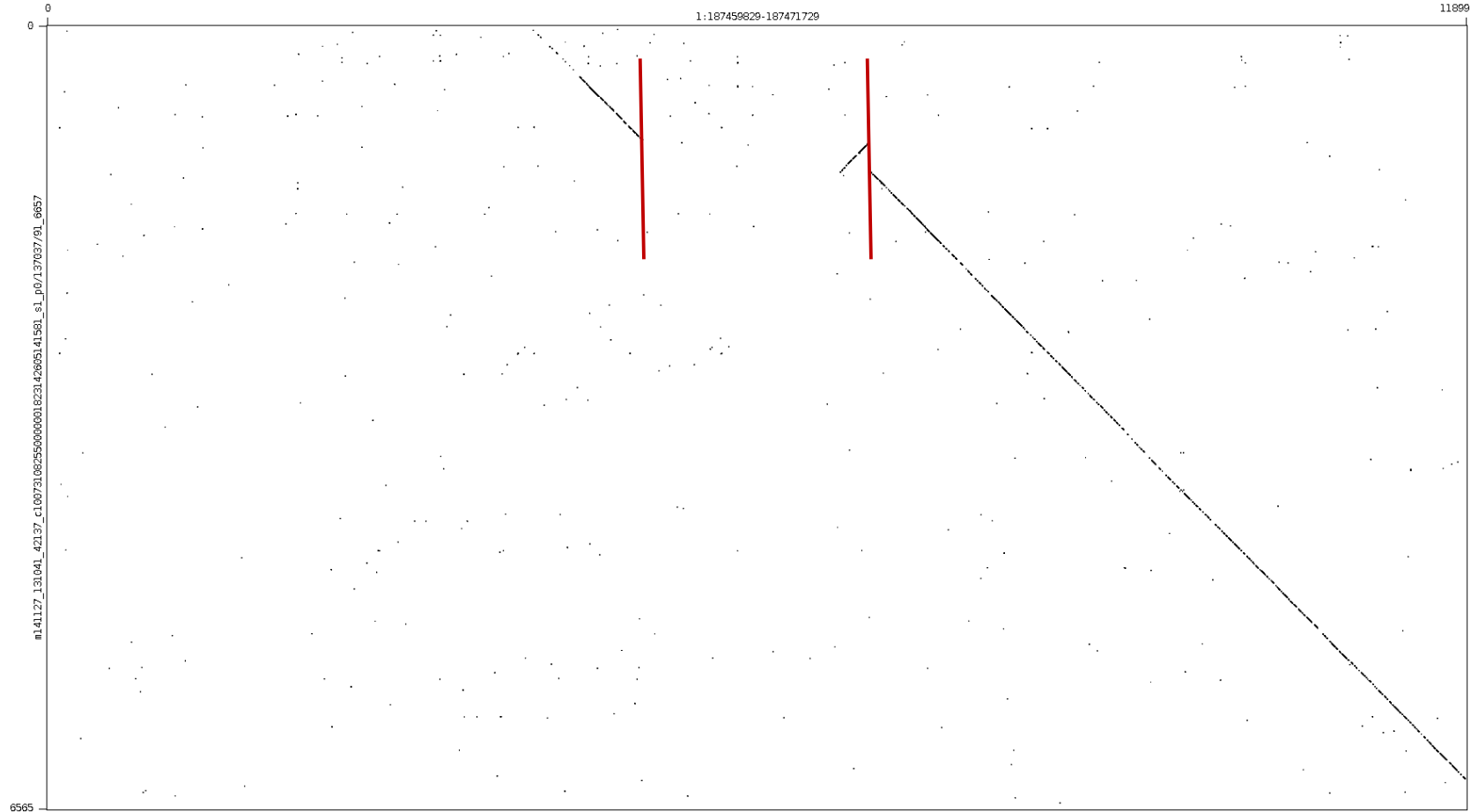


chr1:187464829-187466729



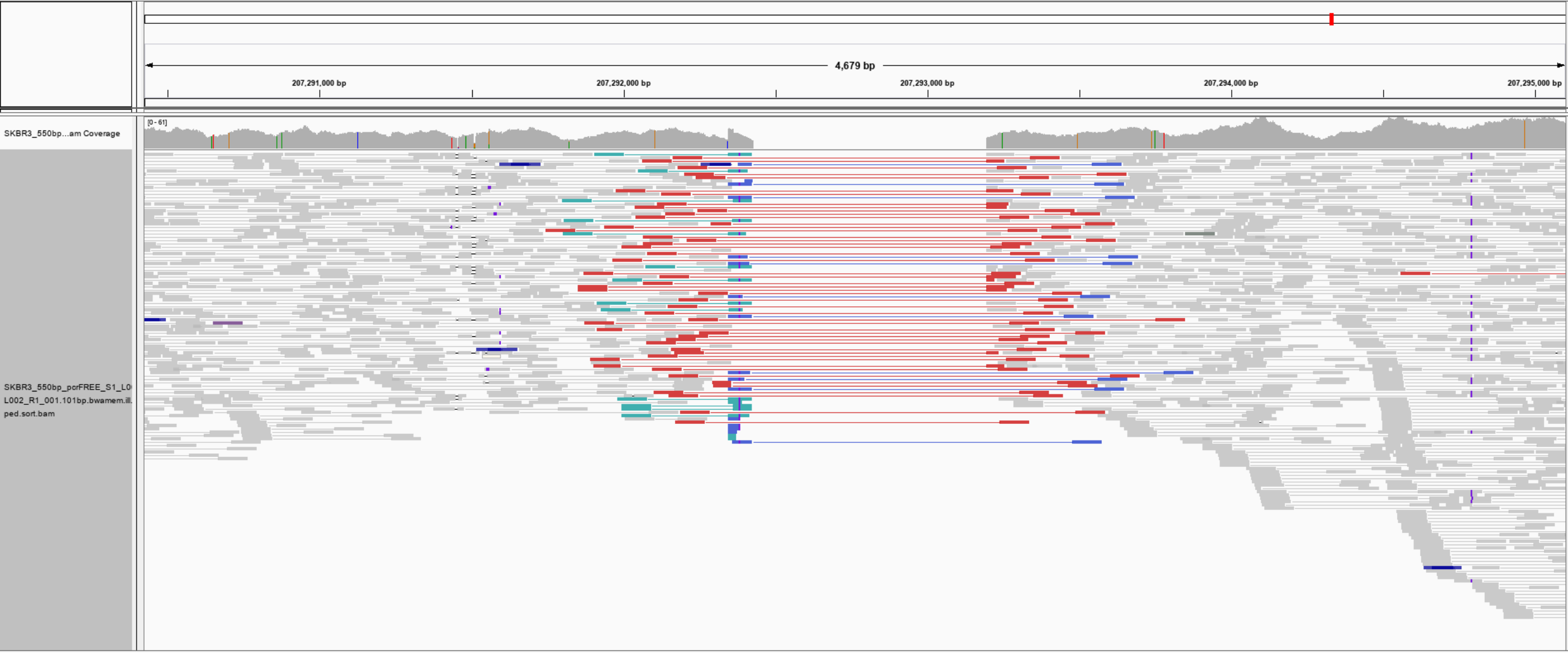


1:187459829-187471729 vs. m141127\_131041\_42137\_c10073108255000001823142865141581\_s1\_p0/137037/91\_6657  
Zoom: 7 : 1  
Word length: 10 GC ratio seq1: 0.3613  
Window size: 0 GC ratio seq2: 0.3479  
Matrix: edna.mat Program: Gepard (1.40 final)

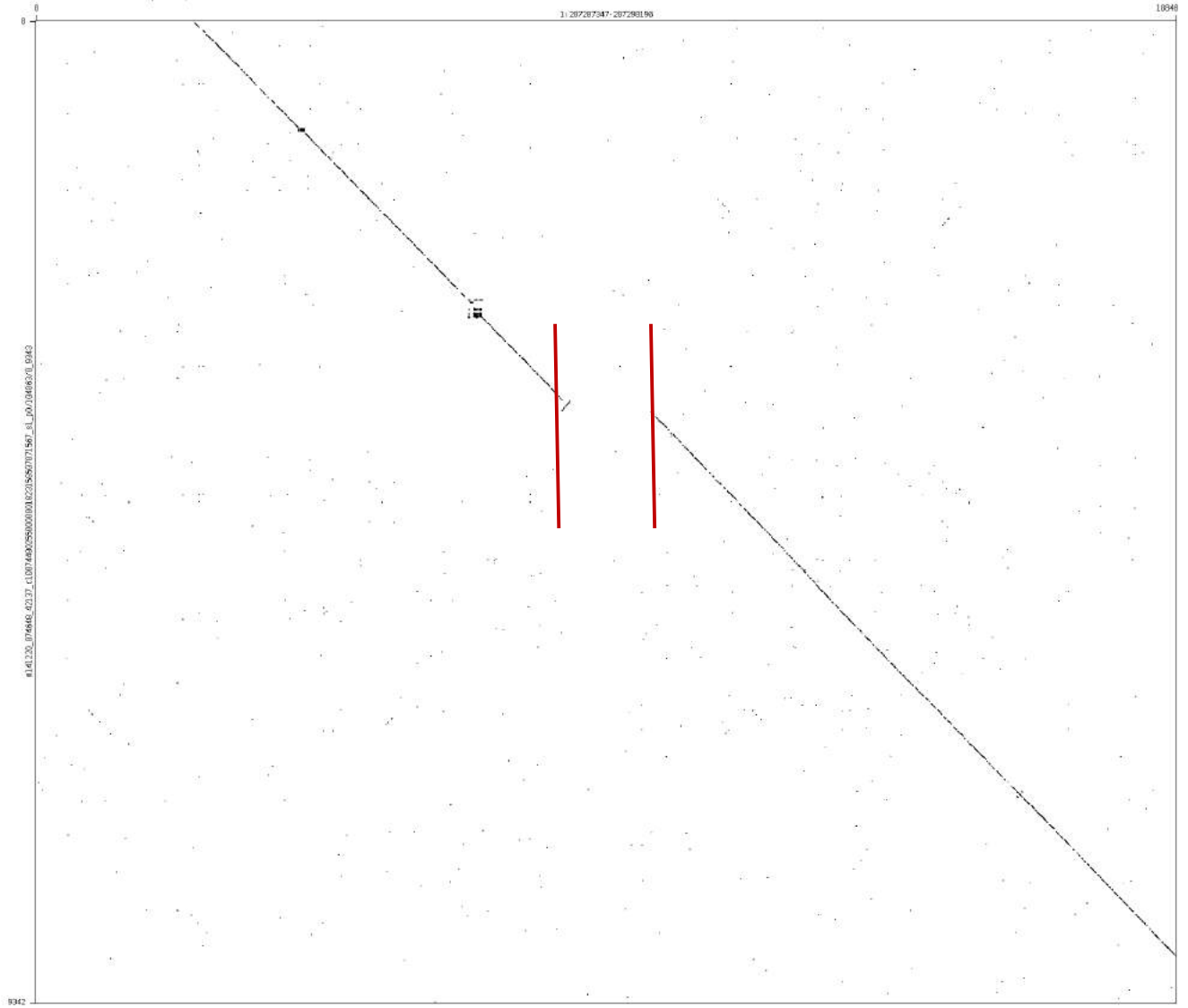


11899

chr1:207292347-207293196



1:207287947-207298196 vs. s141228\_074649\_42137\_c1007448255000001823195907071567\_s1\_p0104063/O\_9343  
Zoom: 8 : 1  
Word length: 10 GC ratio seq1: 0.3687  
Window size: 0 GC ratio seq2: 0.3602  
Matrix: edna.mat Program: Gepard (1.40 final)



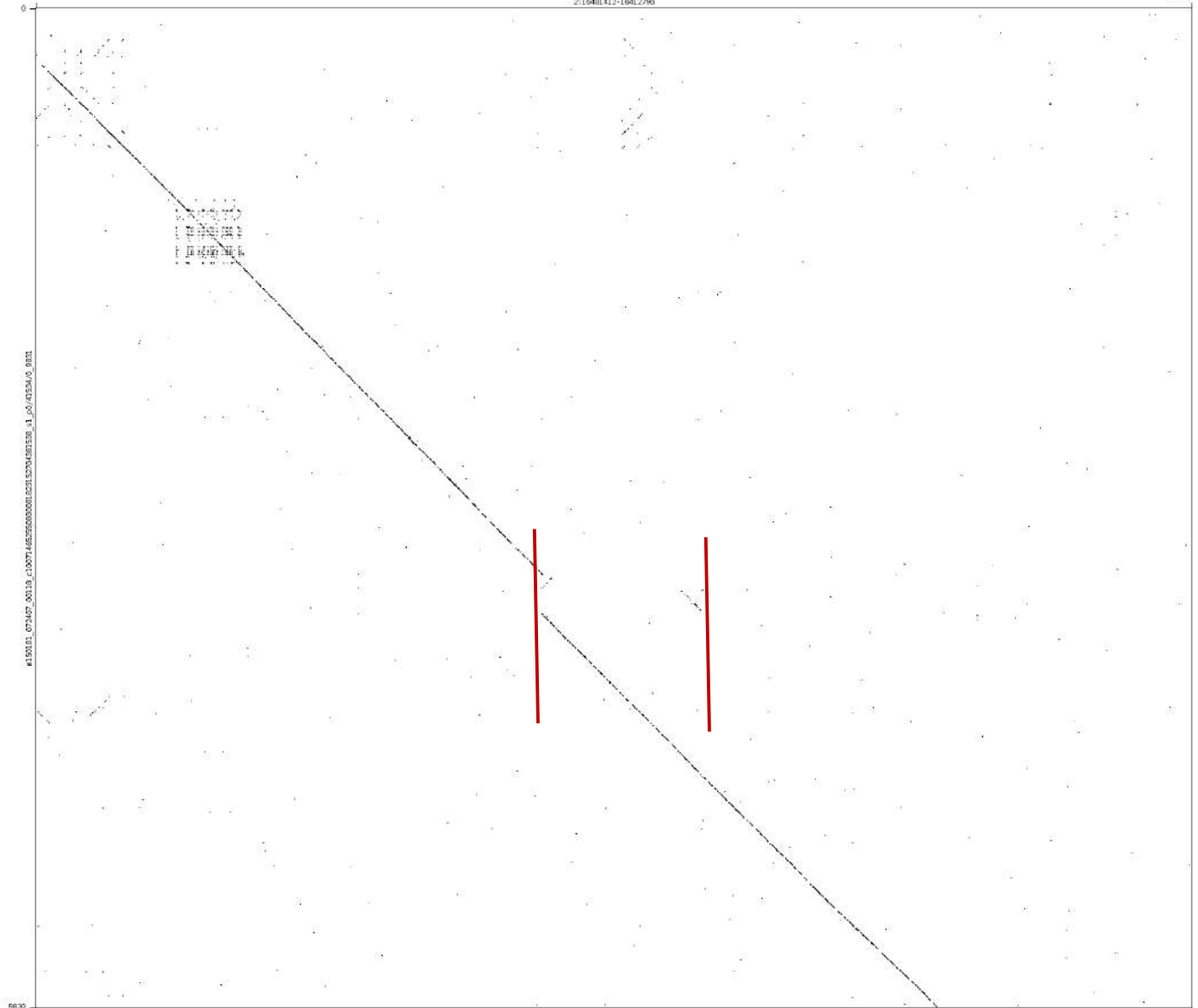
chr2:16406412-16407796



2:1640:412:16412796 vs. #150101\_072407\_00119\_c100714652556000001820152794301530\_11\_po/41534/0\_9831  
Zarr: 9 1 1  
Word length: 10 00 ratio seq1: 0.4847  
Window size: 0 00 ratio seq2: 0.5061  
Matrix: edos.net Program: separd (1.40 final)

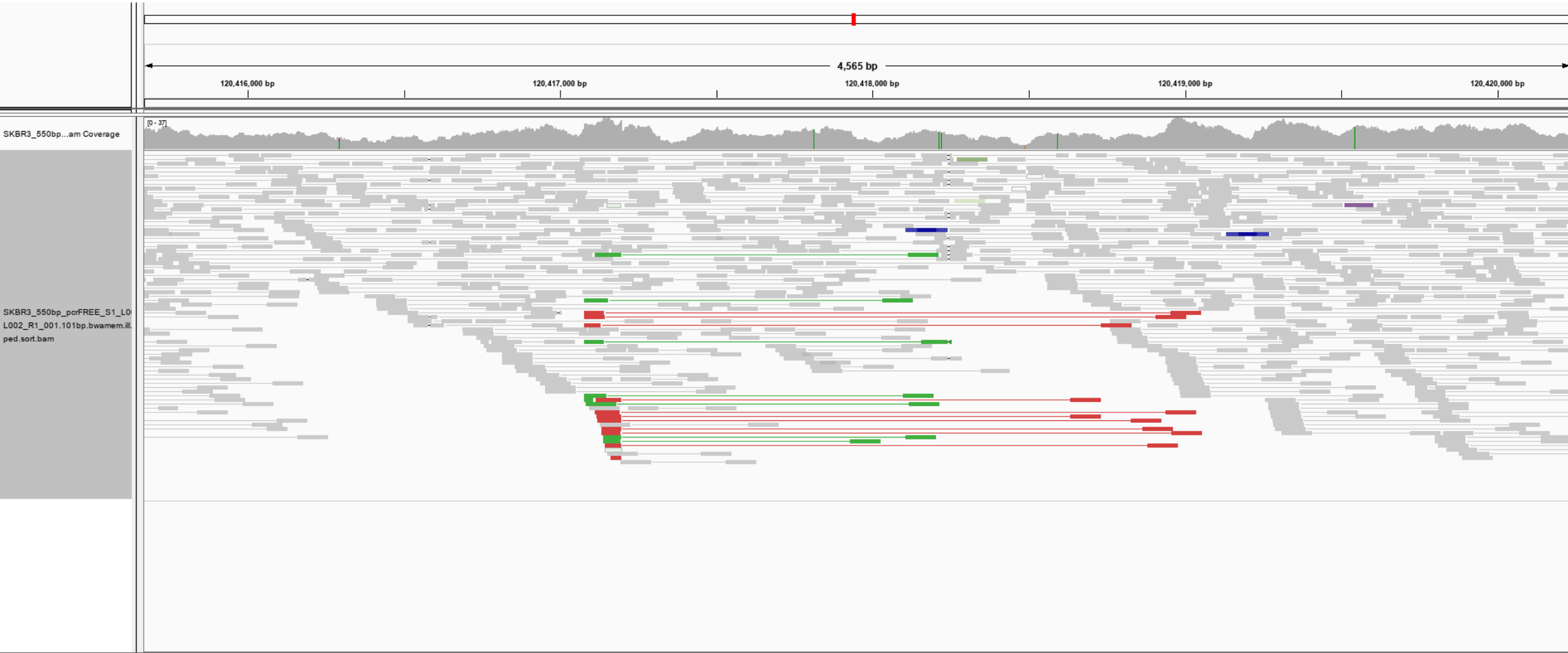
2:1640:412:16412796

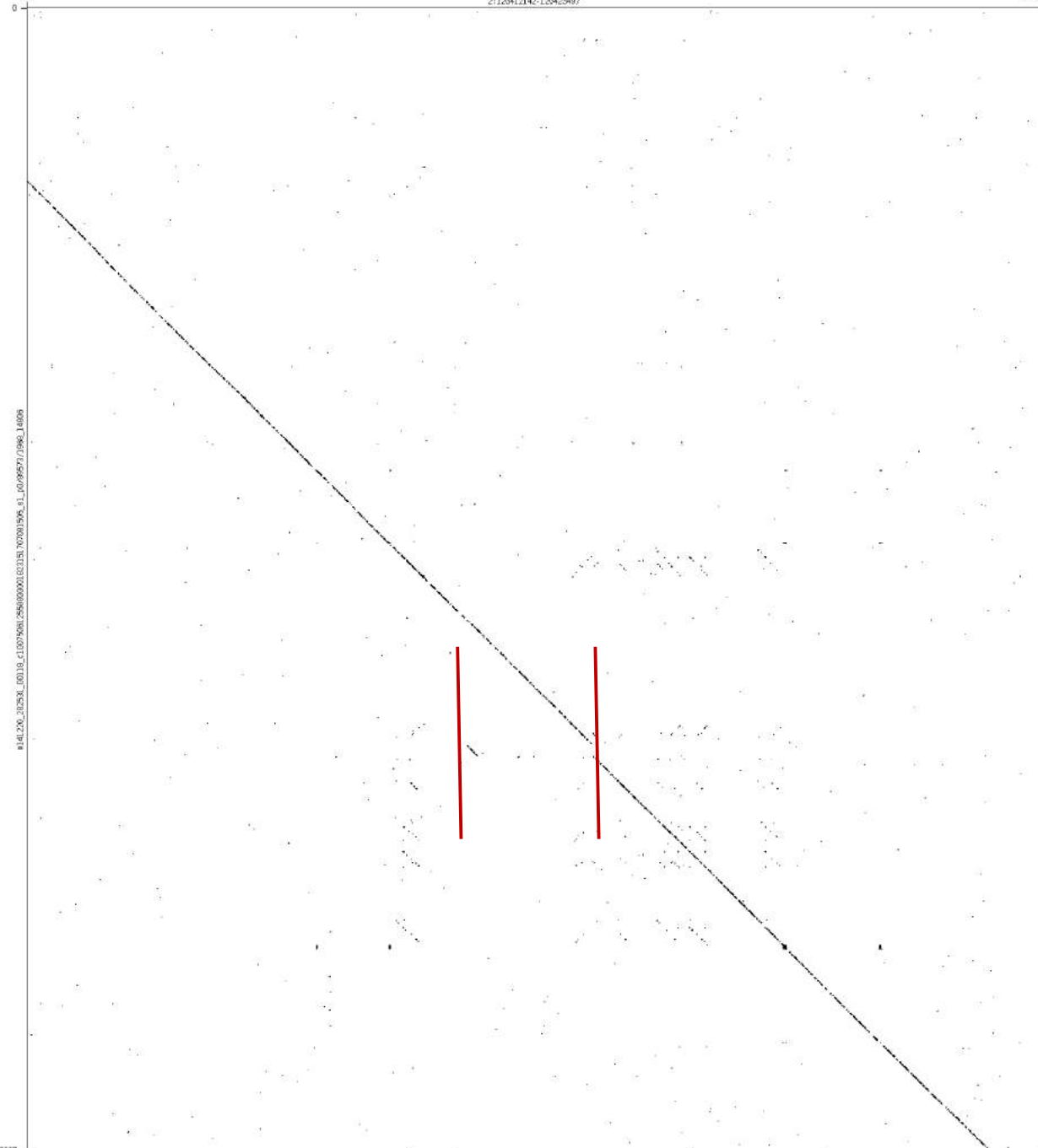
11363



6630

chr2:120417142-120418497



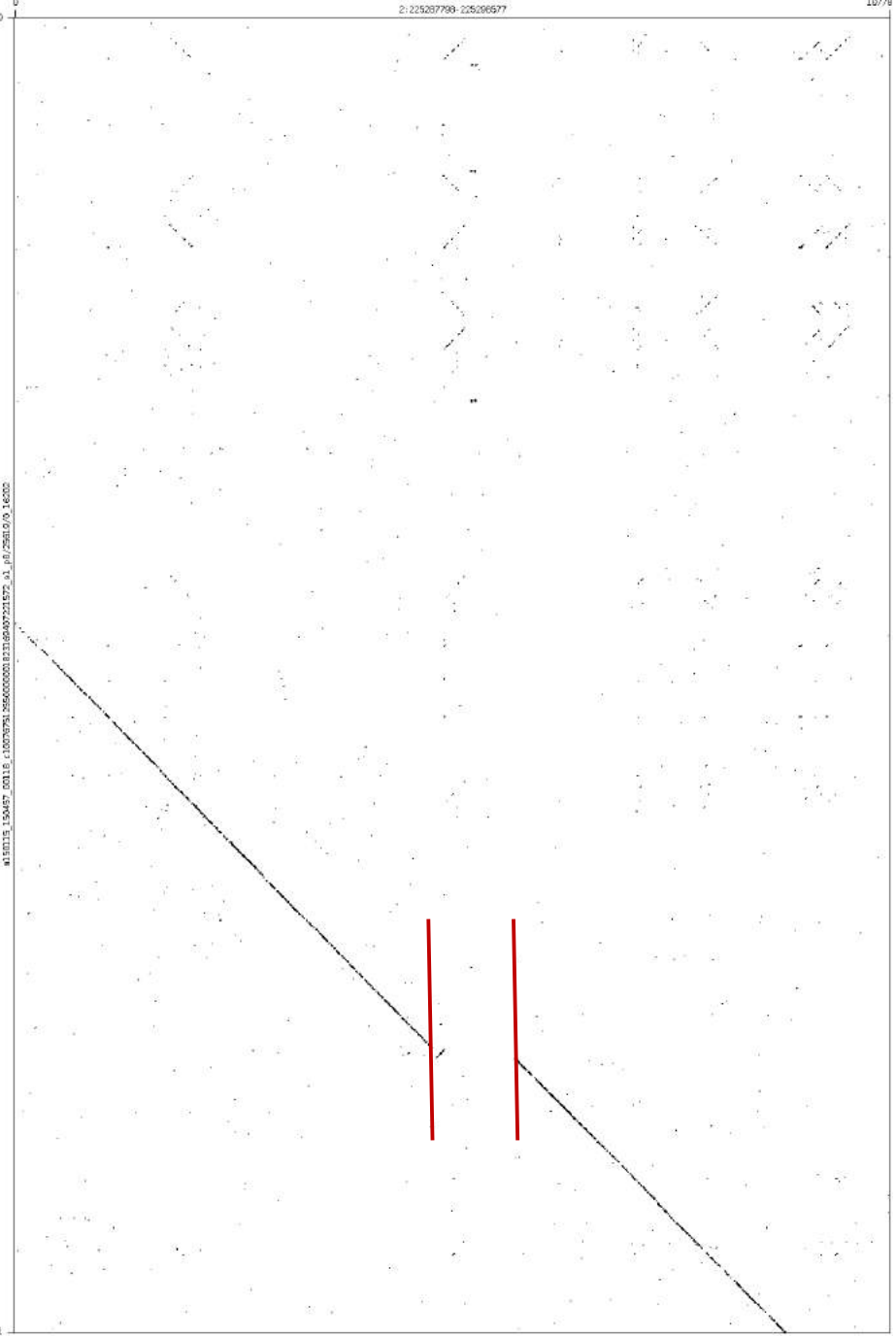


#141220\_202531\_00118\_c1007504.255000001021151707001505\_sl\_10-08673/196\_14806

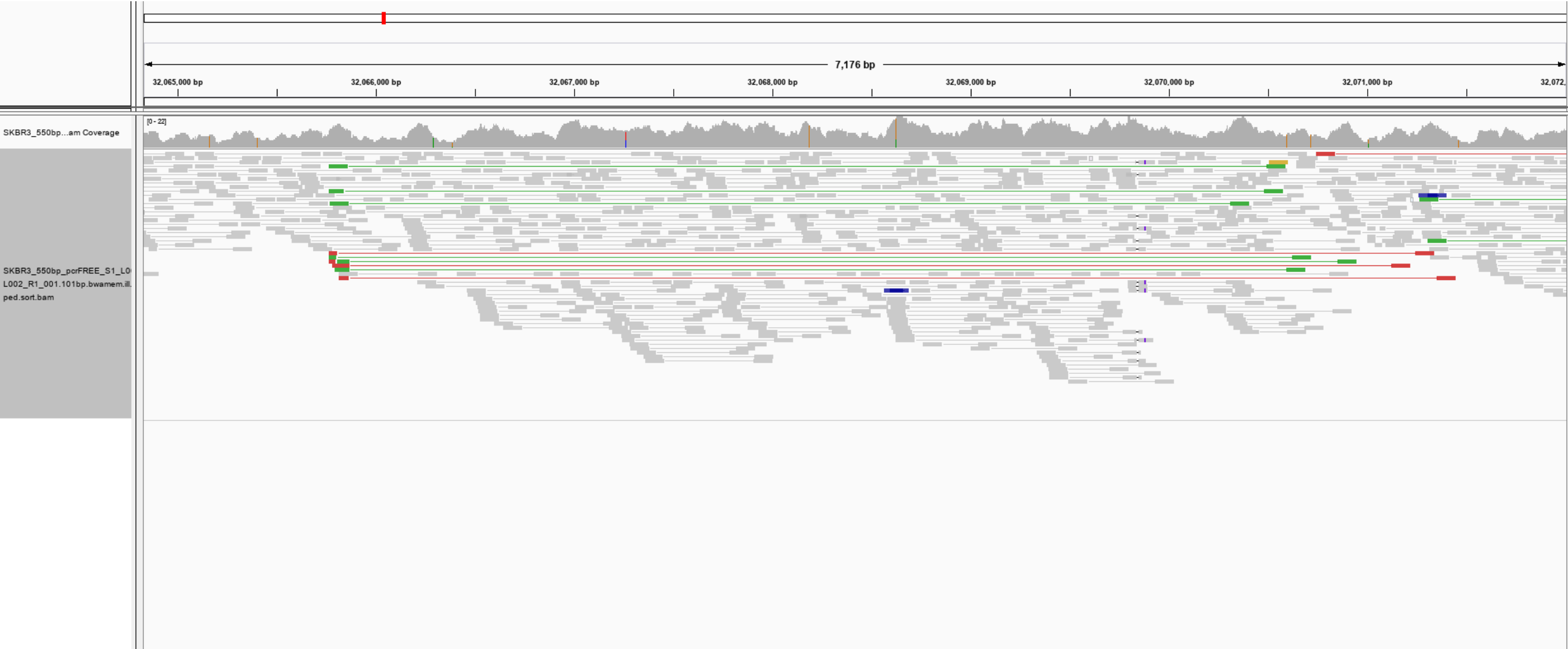
chr2:225292798-225293577



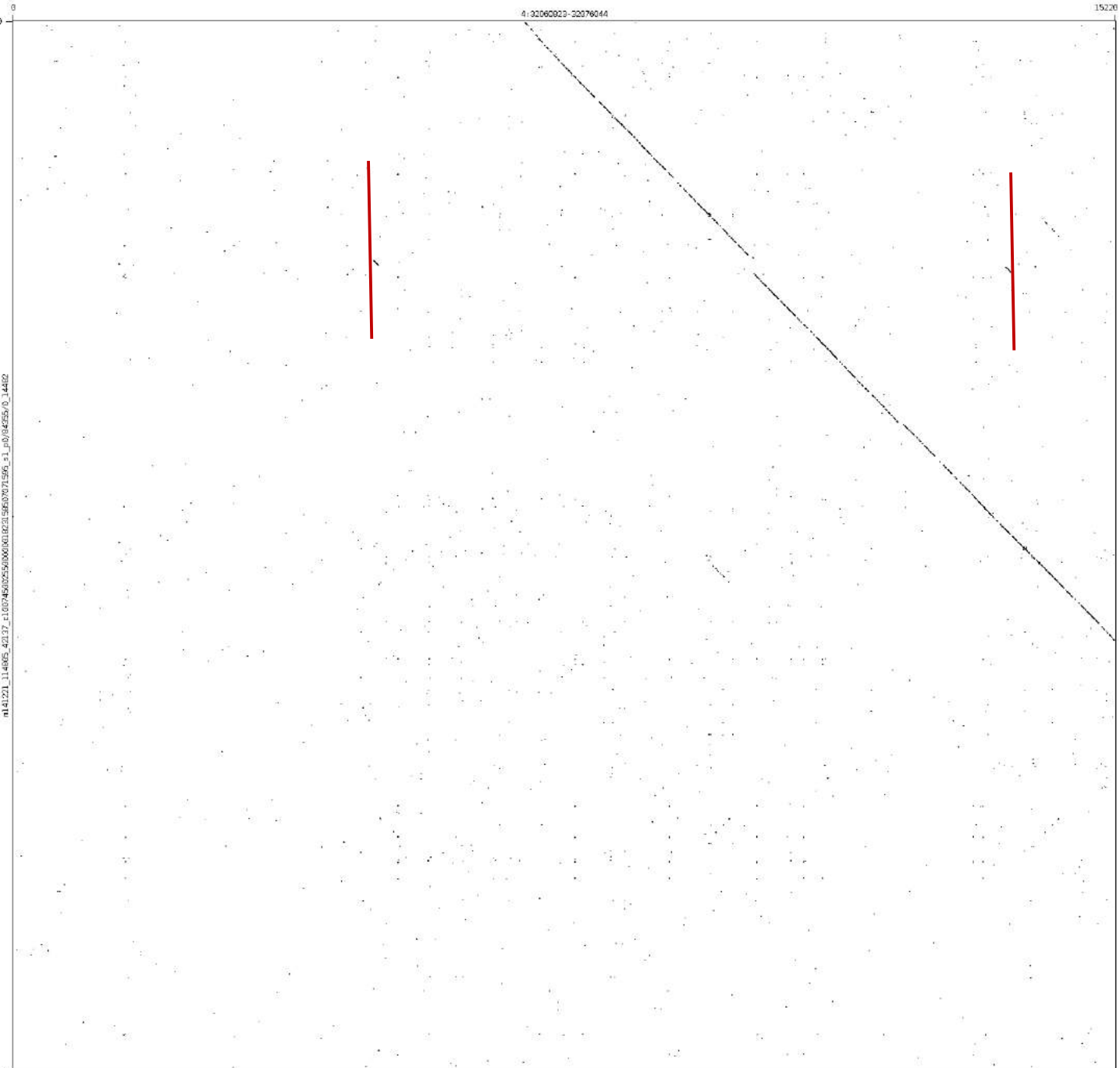




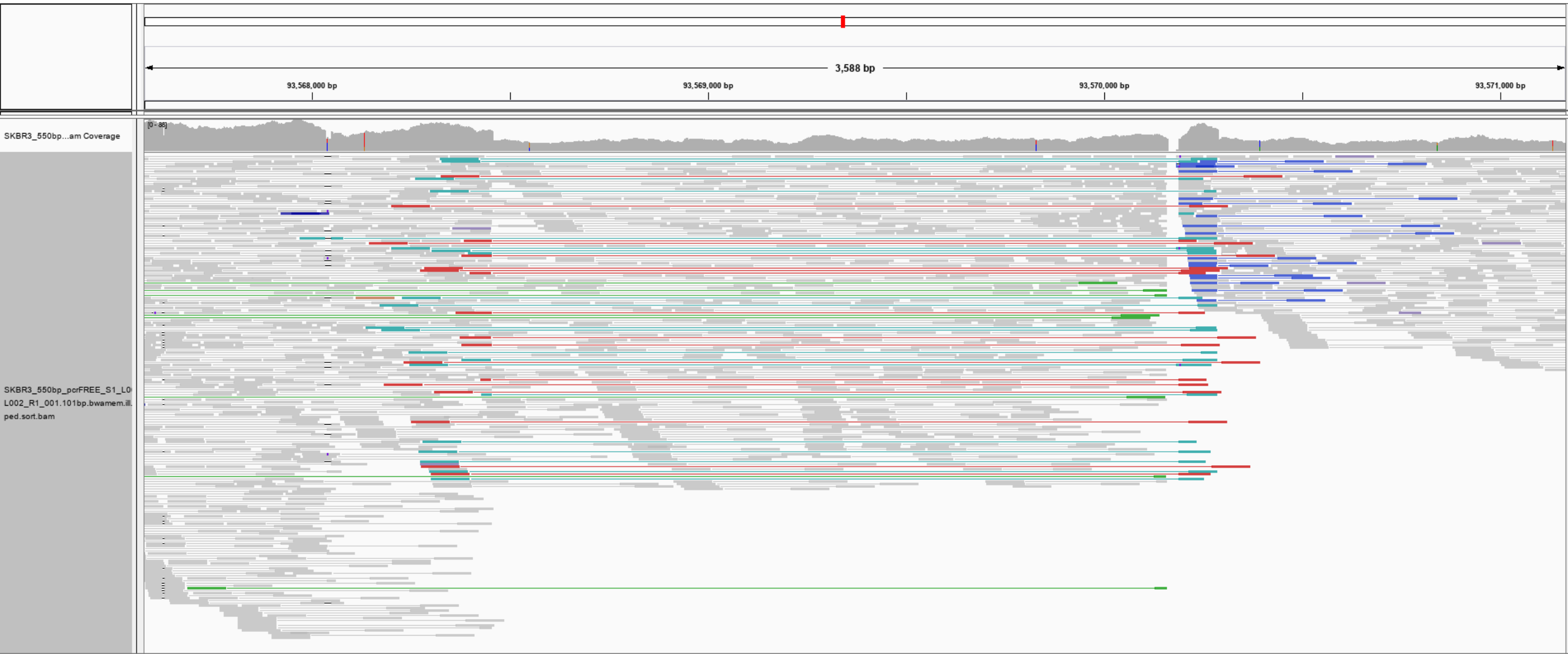
chr4:32065823-32071044

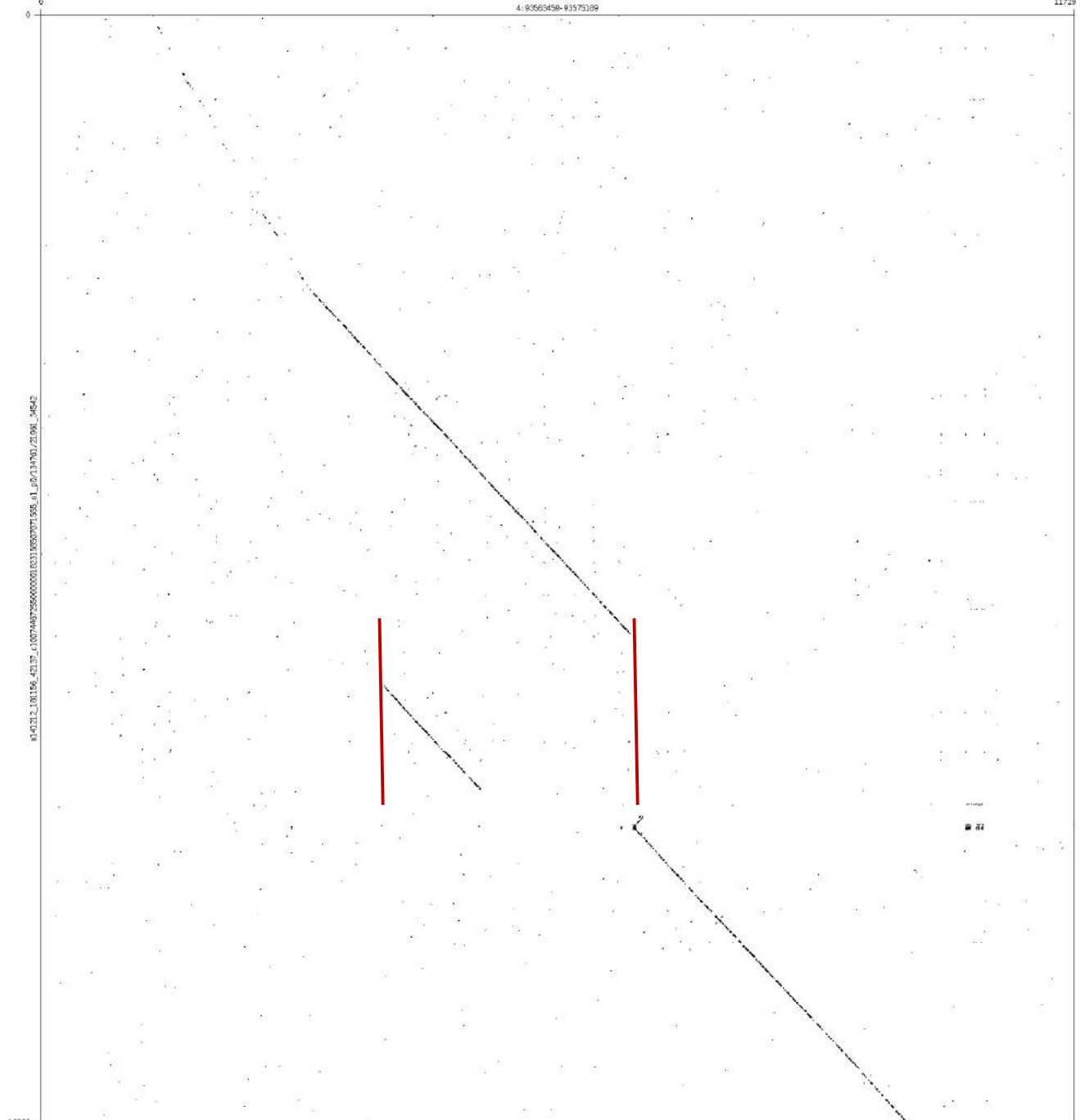


A: 32060825-32076044 vs. n141221\_114865\_42137\_c10074502556000001823158507071596\_s1\_p0/84659/0\_14482  
Zoon: 0 | 1 GC ratio seq1: 0.3713  
Word length: 10 GC ratio seq2: 0.3547  
Window size: 0  
Matrix: edna.mat Program: Gepard (1.40 final)



chr4:93568459-93570189

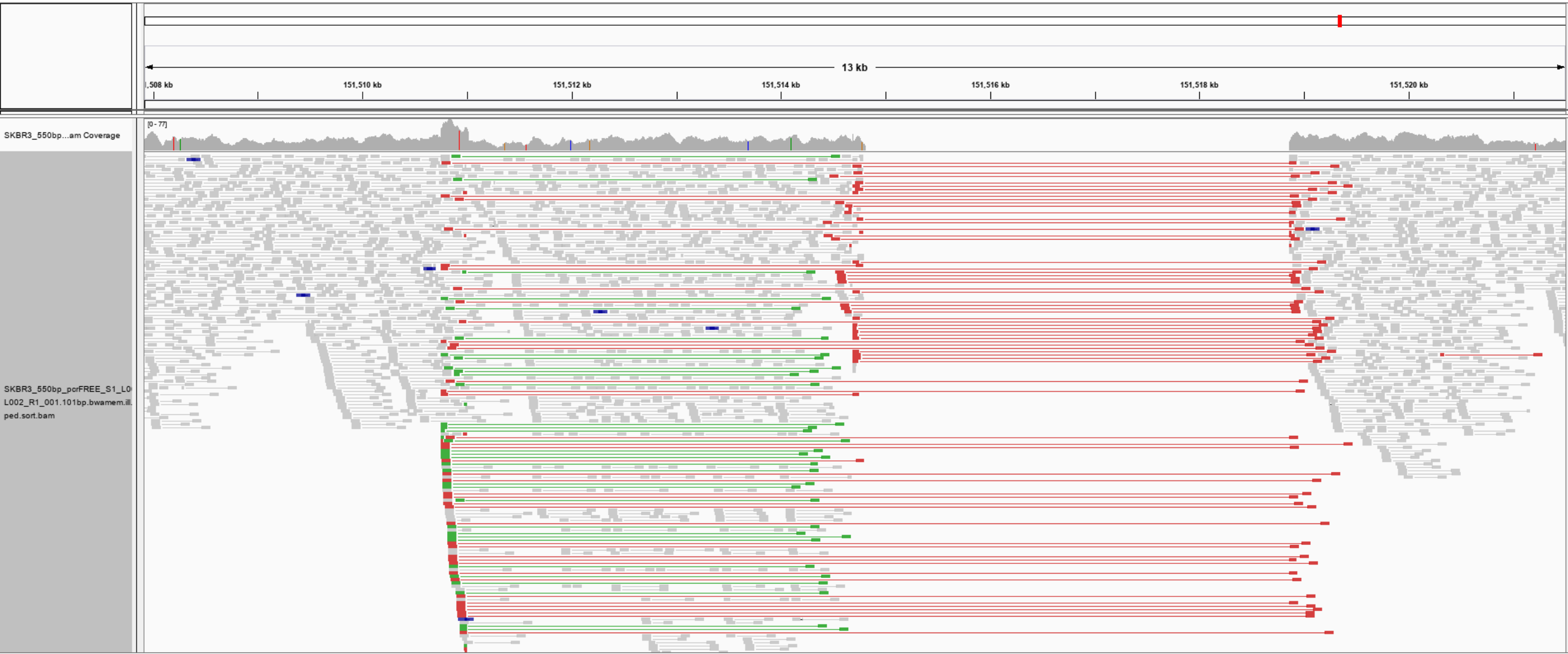




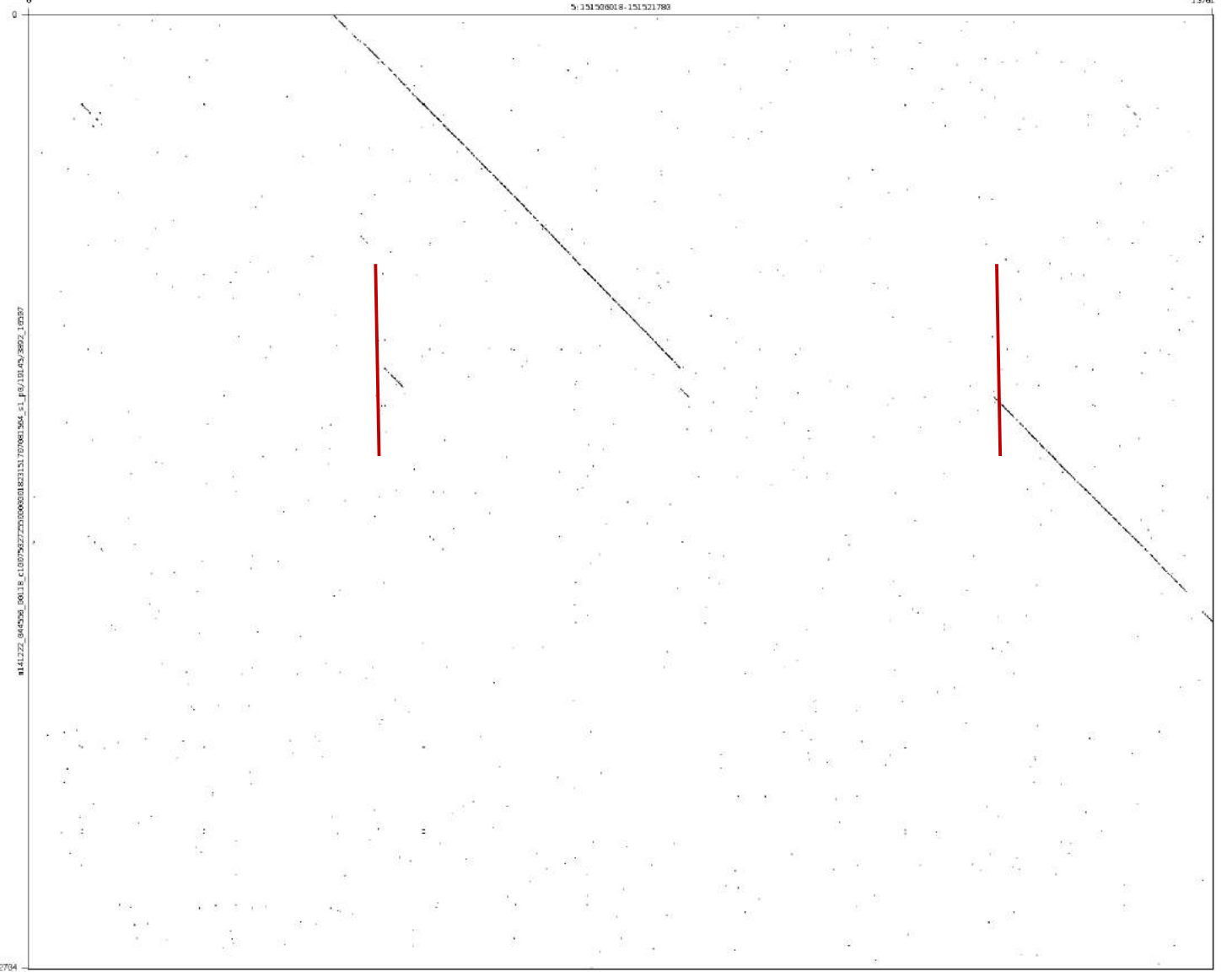
4:41212\_181156\_42137\_c1007998725600000182319550701555\_v1\_p0134761/21981\_34542

■ 41

chr5:151511018-151516780



5:15150018-151521780 vs. n141222\_044256\_00118\_c100750272256000001823151707081364\_sl\_p0/15145/3802\_10597  
Zoon: 0 - 1 GC ratio seq1: 0.4157  
Word length: 10 GC ratio seq2: 0.4156  
Window size: 0  
Matrix: edna.mat Program: depard [1.40 final]

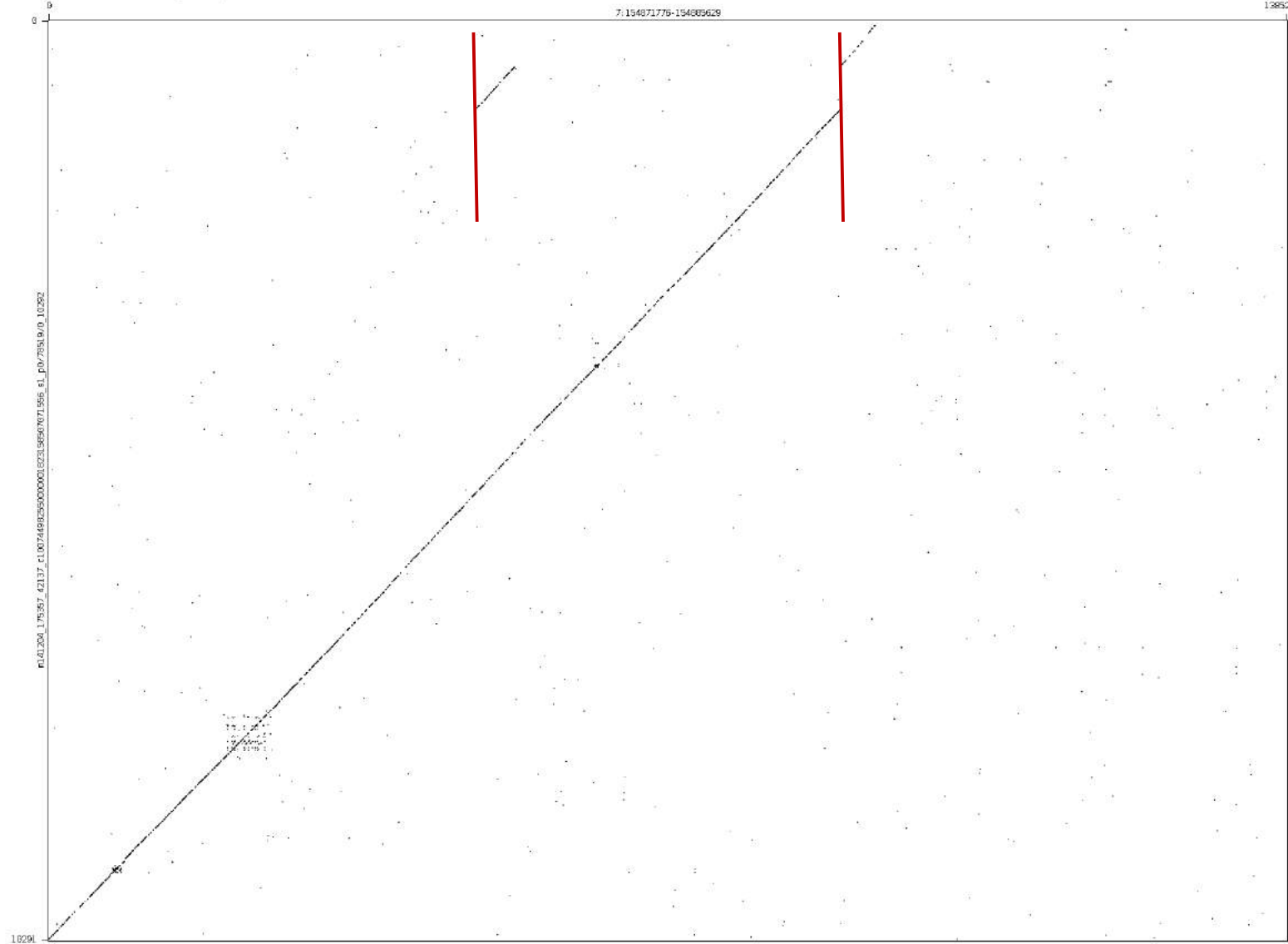


chr7:154876776-154880629

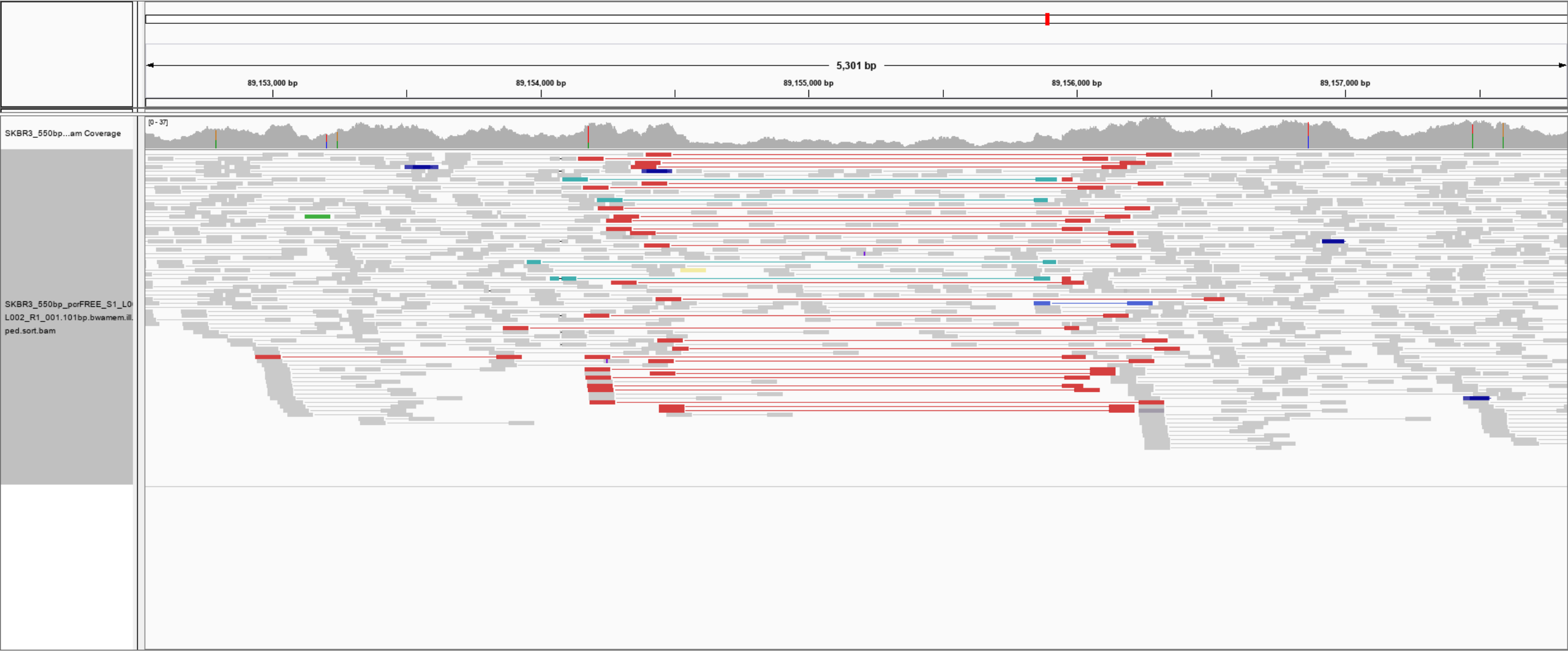




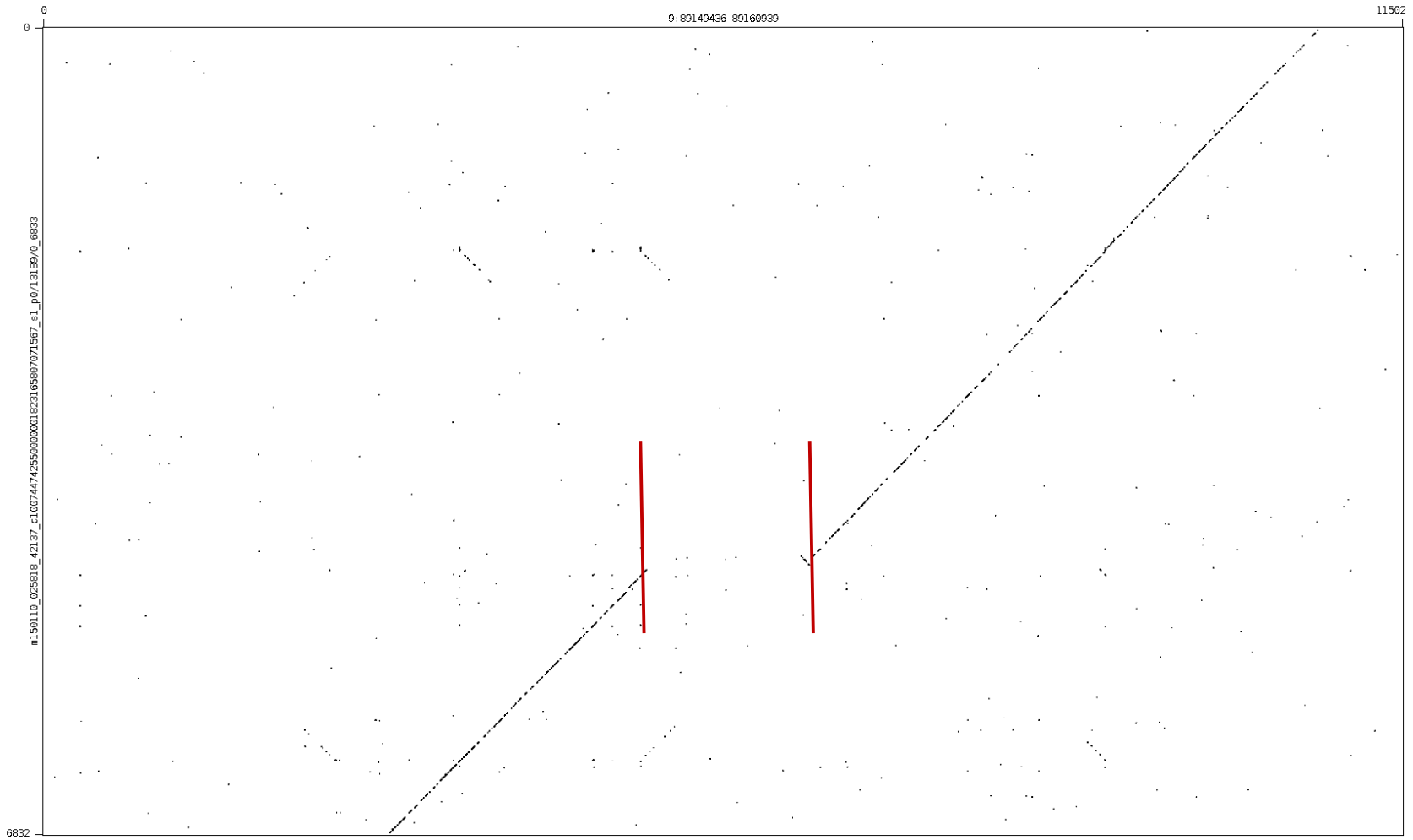
7:154871776-154885629 vs. nt41204\_175357\_42137\_c10074496259600001823156507071596\_sl\_p0/78519/0\_10282  
Zoom: 8 : 1  
Word length: 10 GC ratio seq1: 0.4283  
Window size: 0 GC ratio seq2: 0.4299  
Matrix: edna.mat Program: Gepard (1.40 final)



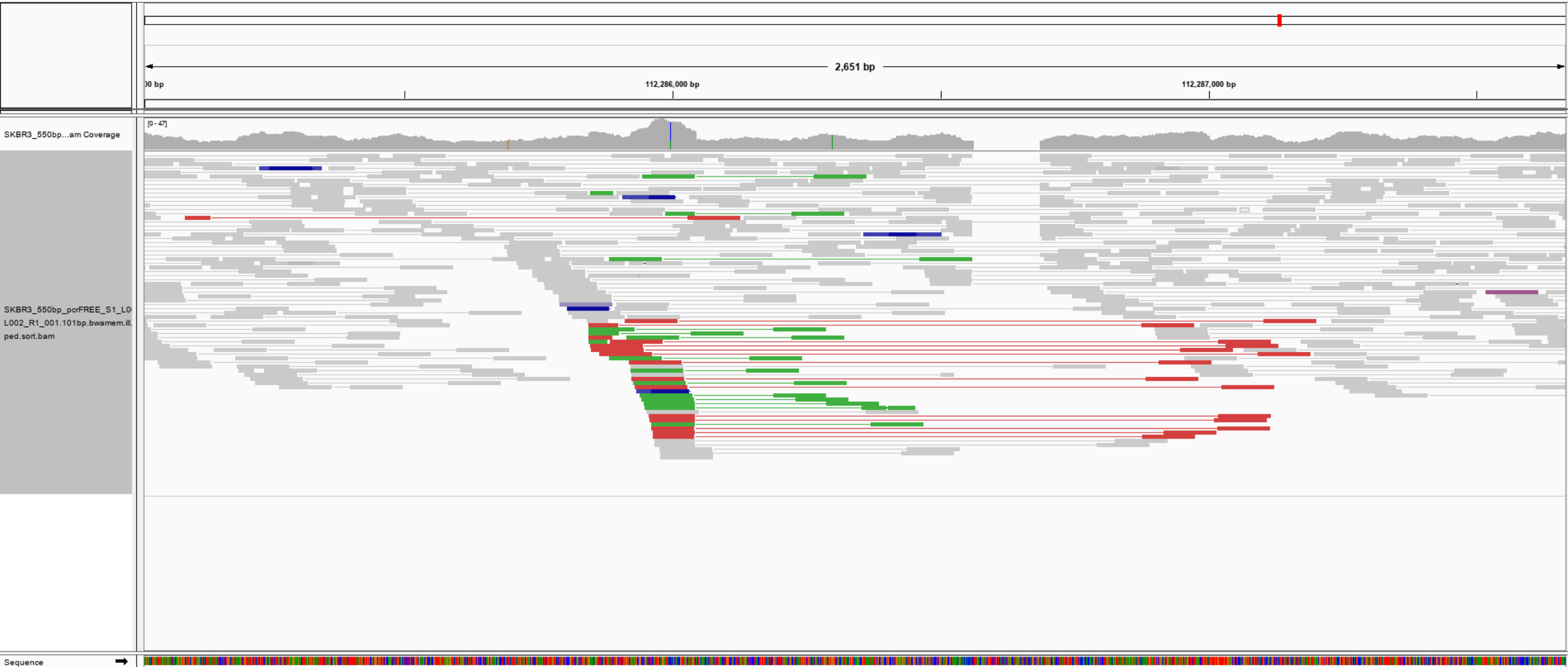
chr9:89154436-89155939



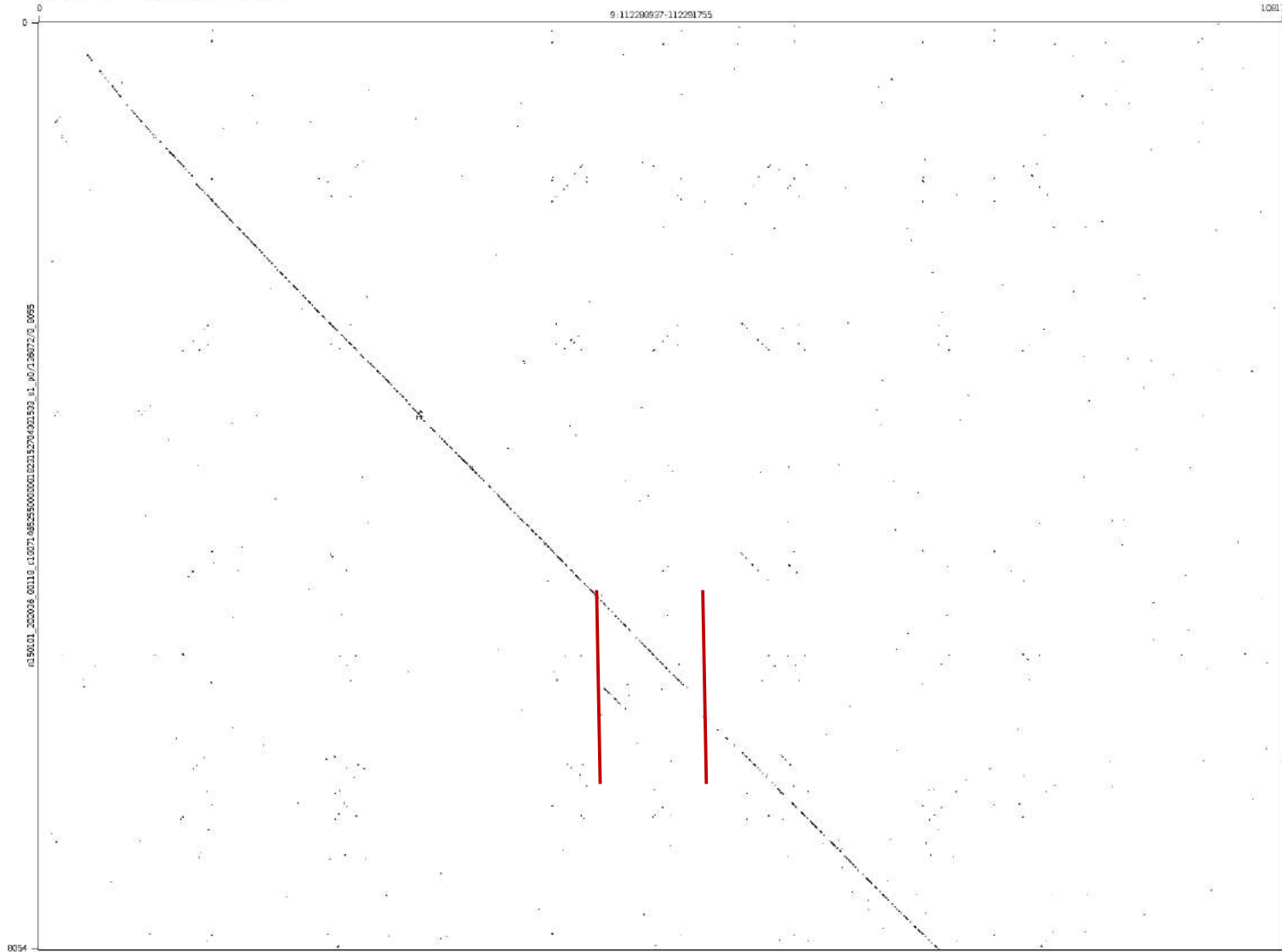
9:89149436-89160939 vs. m150110\_025818\_42137\_c10074474255000001823165807071567\_sl\_p0/13189/0\_6833  
Zoom: 7 : 1  
Word length: 10 GC ratio seq1: 0.4011  
Window size: 0 GC ratio seq2: 0.3767  
Matrix: edna.mat Program: Gepard (1.40 final)



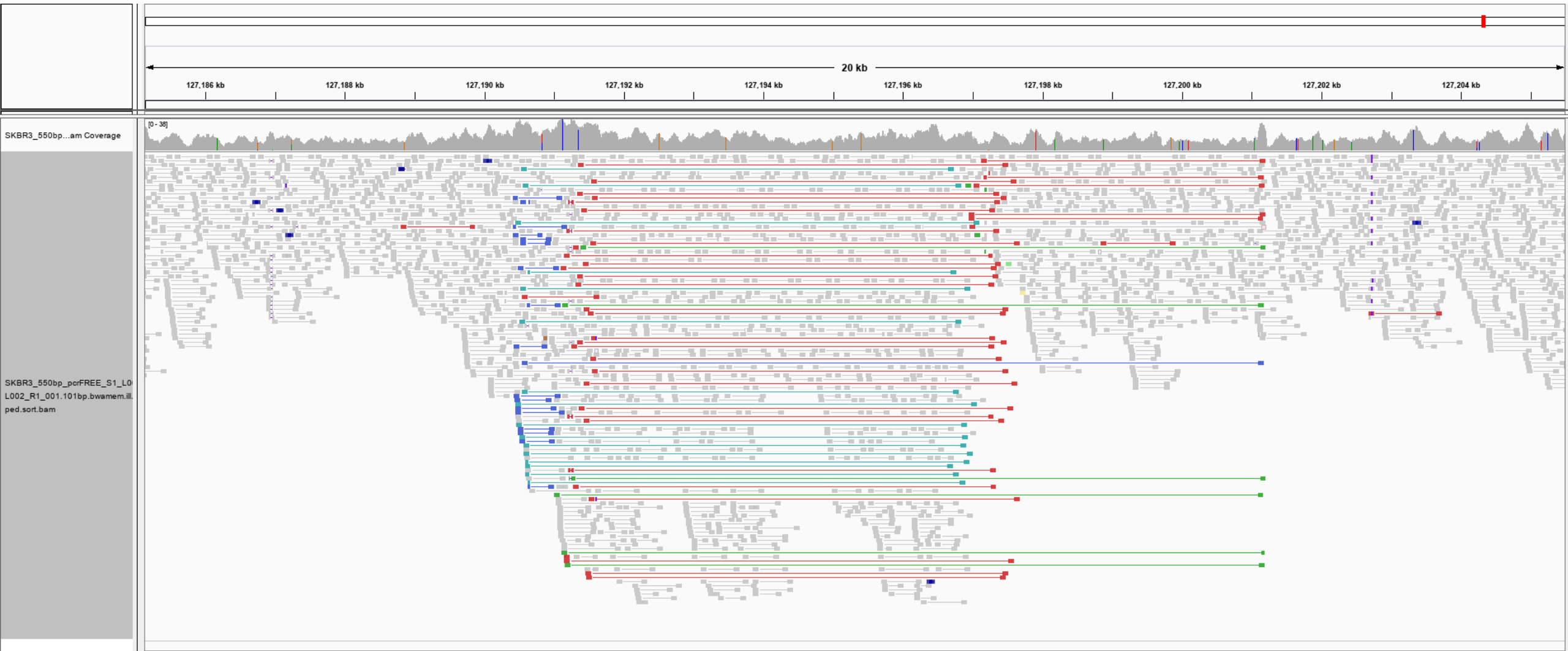
chr9:112285937-112286755



g:11228887-112281755 vs. n1501\_01\_200036\_00118\_c10071485259000001829152704301333\_c1\_p0/136872/8\_8005  
Zlen: 9 : 1  
Word length: 10  
Window size: 0  
Matrix: edna.est  
OC ratio seq1: 0.4224  
OC ratio seq2: 0.4279  
Program: Gepard (1.40 final)



chr10:127191013-127197233

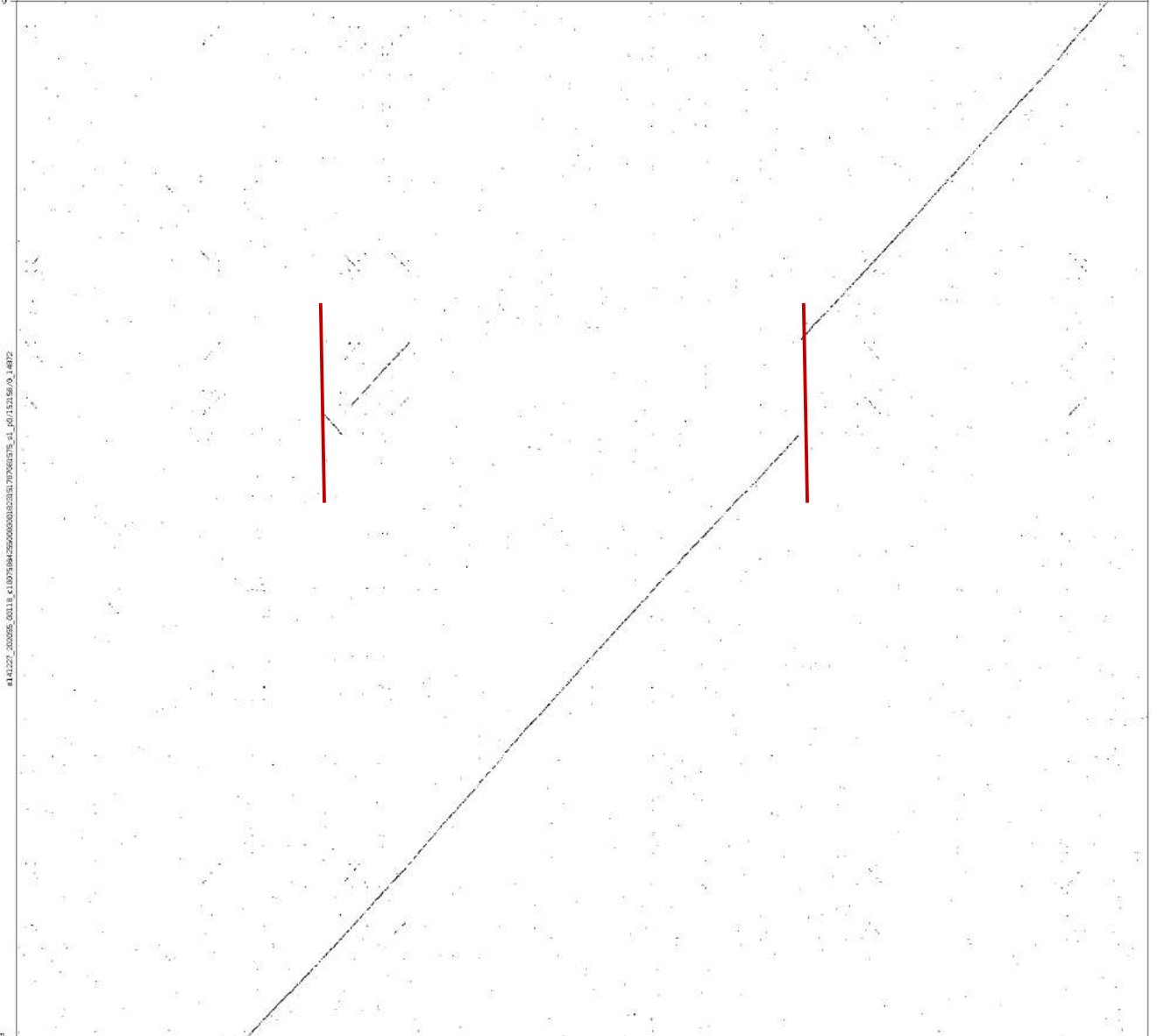


10:12718603-127202233 vs. #141227\_202059\_00118\_c1067506405900000003018238151707881575\_sl\_p0/152156/0\_14872

0

10:12718603-127202233

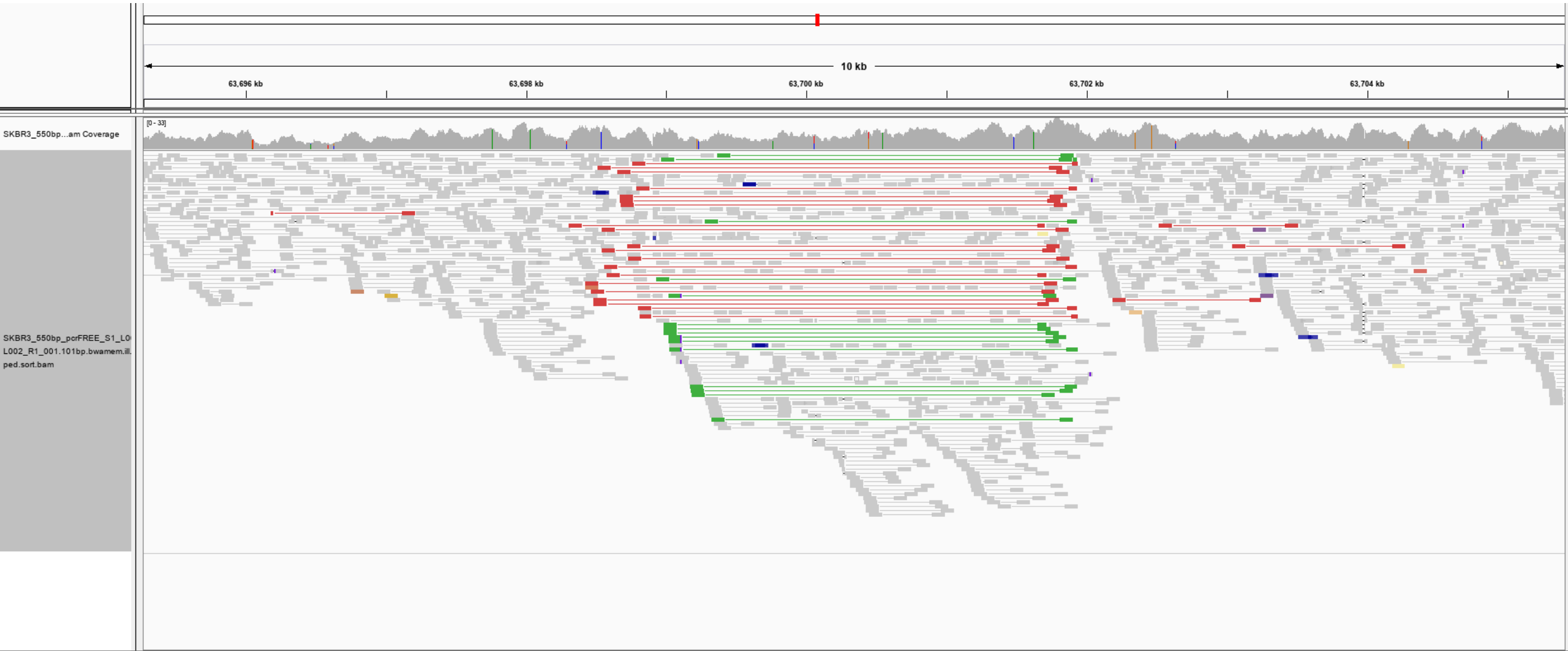
14819



#141227\_202059\_00118\_c1067506405900000003018238151707881575\_sl\_p0/152156/0\_14872

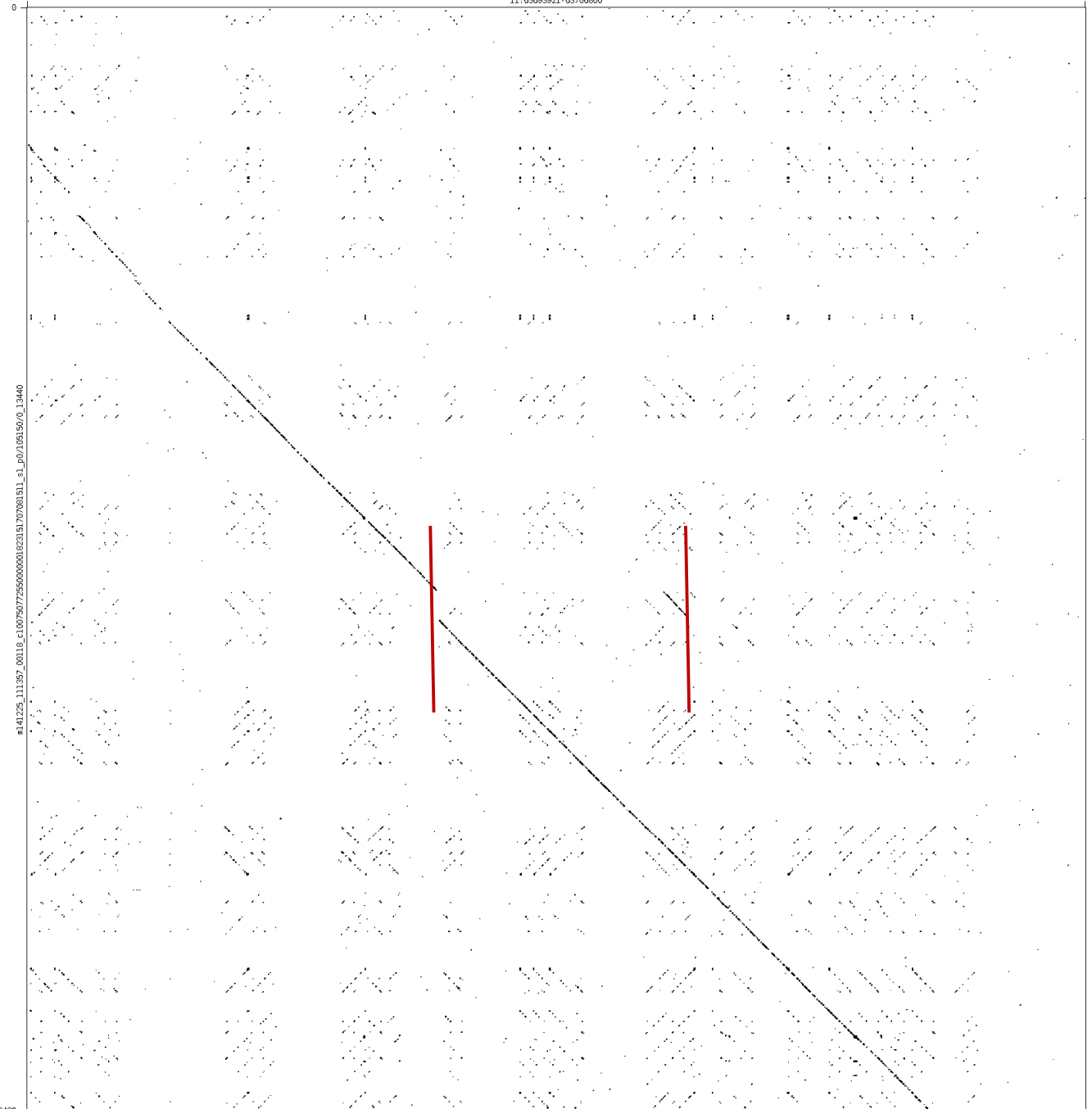
14871

chr11:63698921-63701800

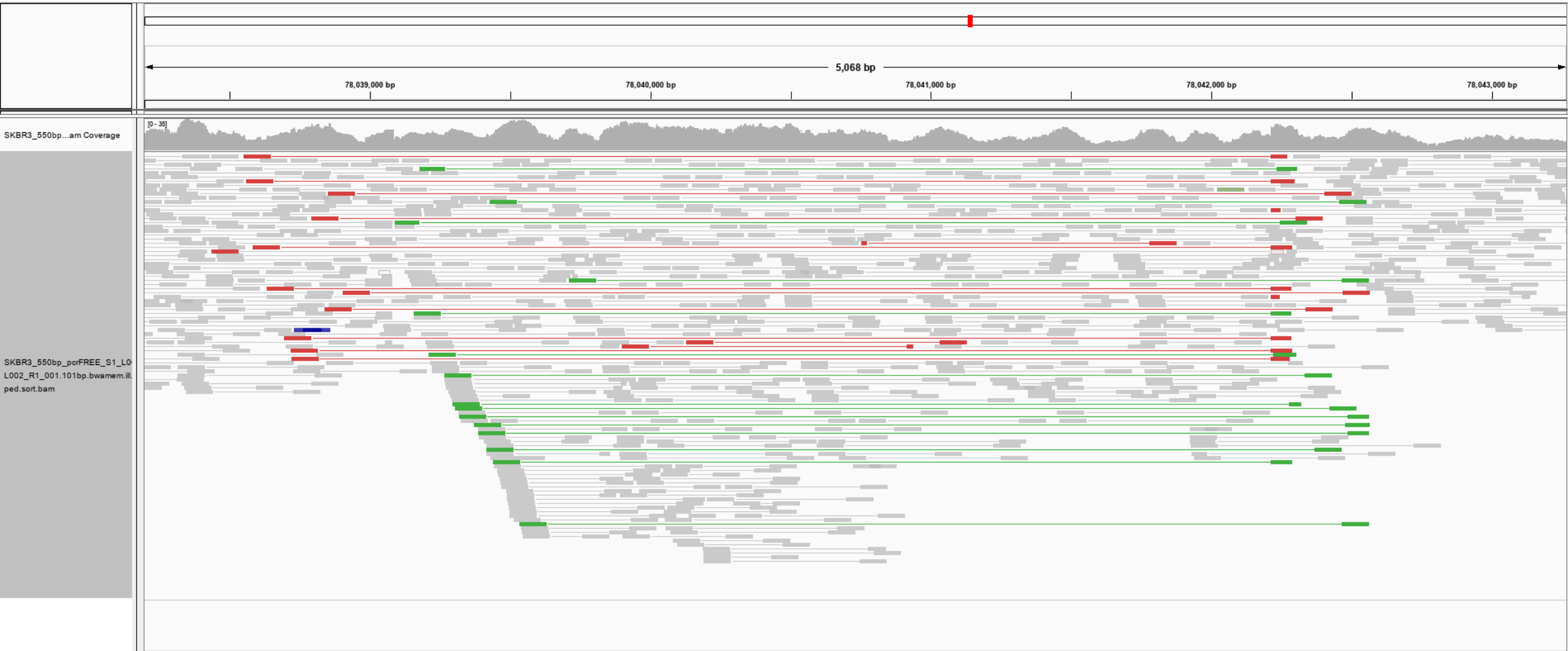




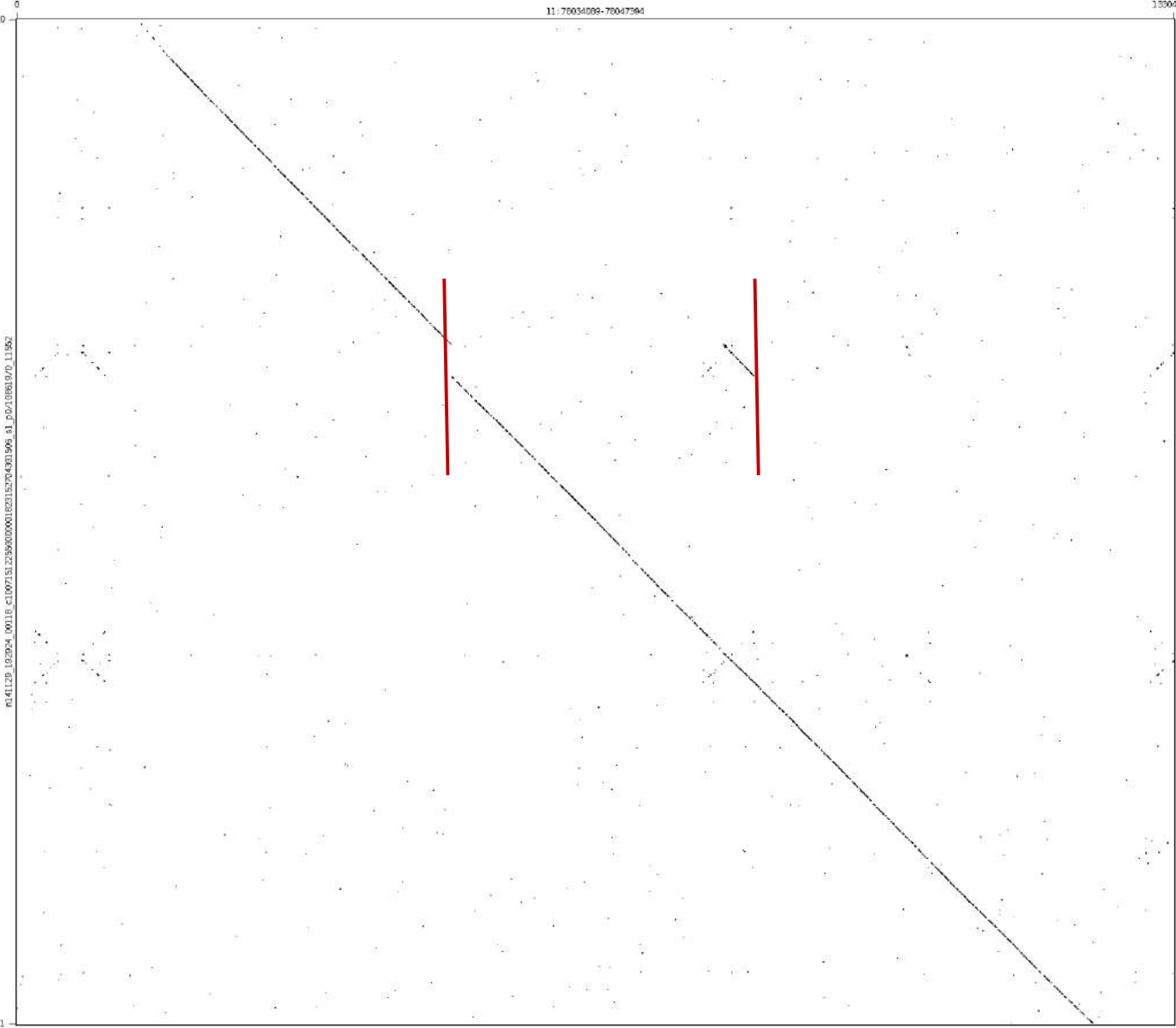
#141225\_111357\_06116\_c100750772550000001823151707081511\_sl\_p0/105150/0\_13440



chr11:78039089-78042394



11:78034008-78047594 vs. #141129\_102824\_00118\_c10071512255000001823132794301506\_s1\_p8/108819/d\_11552  
Zoom: 8 : 1  
Word length: 10 GC ratio seq1: 0.4902  
Window size: 0 GC ratio seq2: 0.3837  
Matrix: edna.mat Program: GeparD (1.40 final)

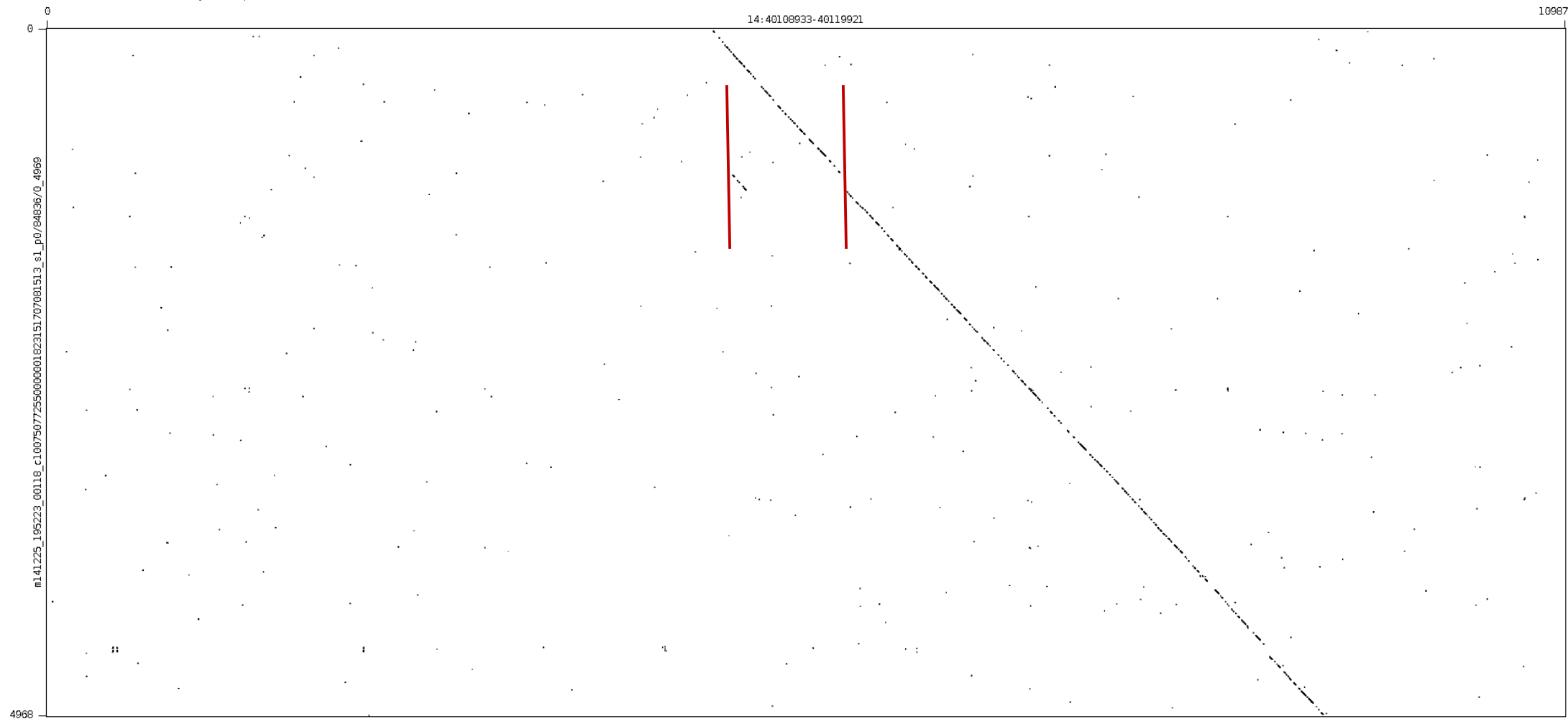


chr14:40113933-40114921

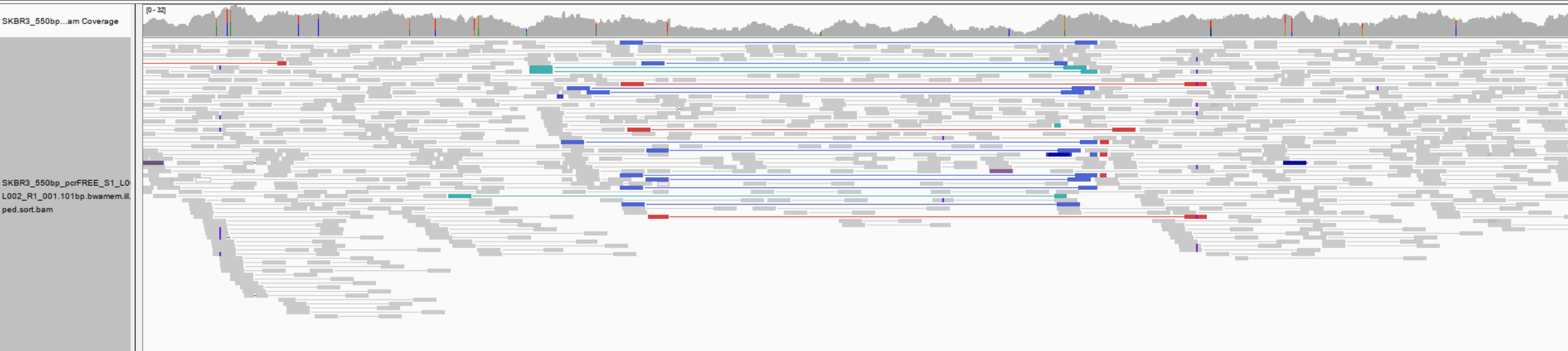
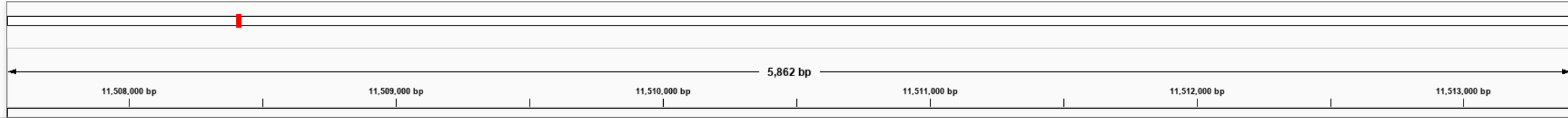


# 14\_40113933\_40114921.27

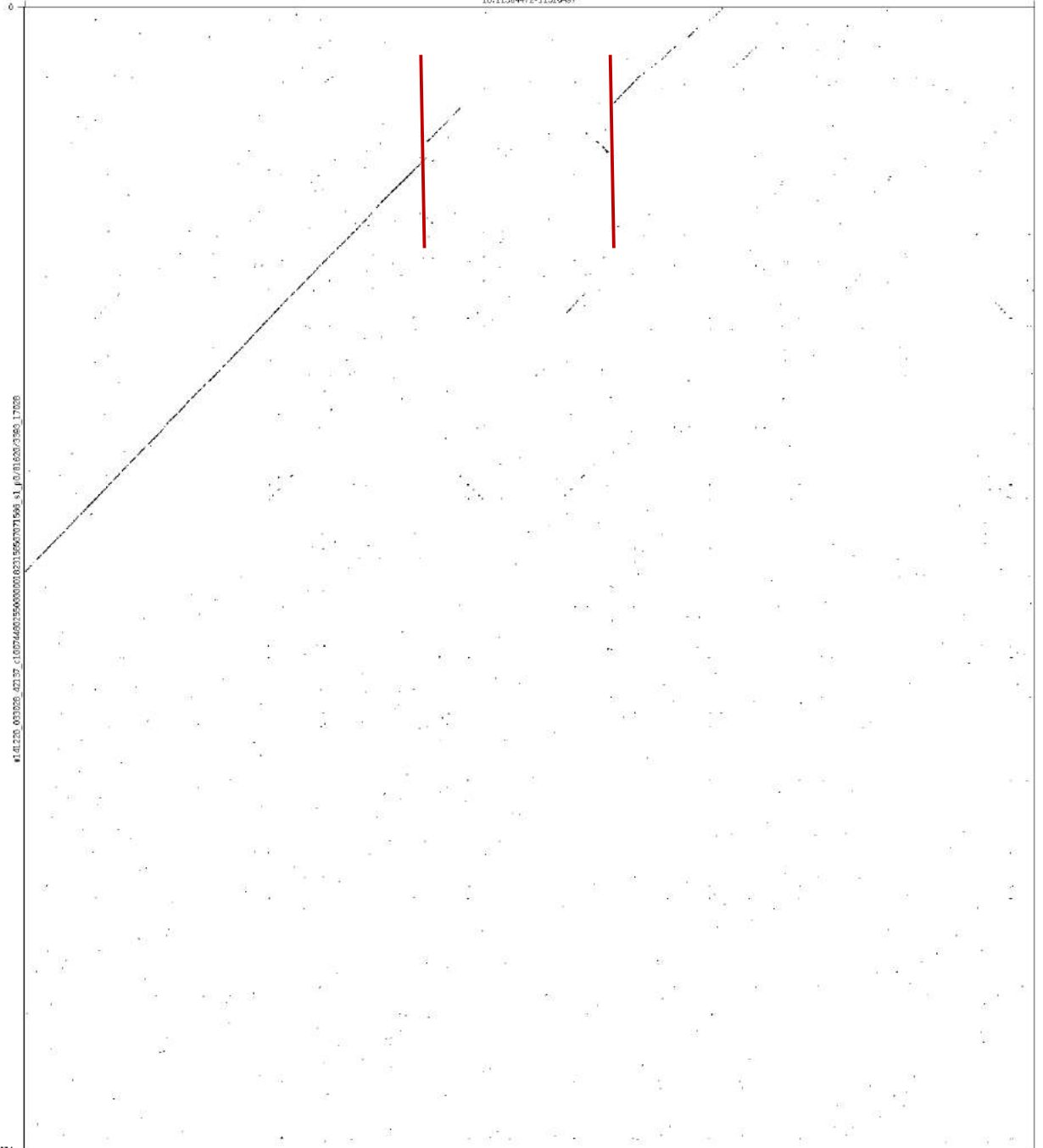
14:40108933-40119921 vs. m141225\_195223\_00118\_c100750772550000001823151707081513\_sl\_p0/84836/0\_4969  
Zoom: 6 : 1  
Word length: 10      GC ratio seq1: 0.3500  
Window size: 0      GC ratio seq2: 0.3457  
Matrix: edna.mat      Program: Gepard (1.40 final)



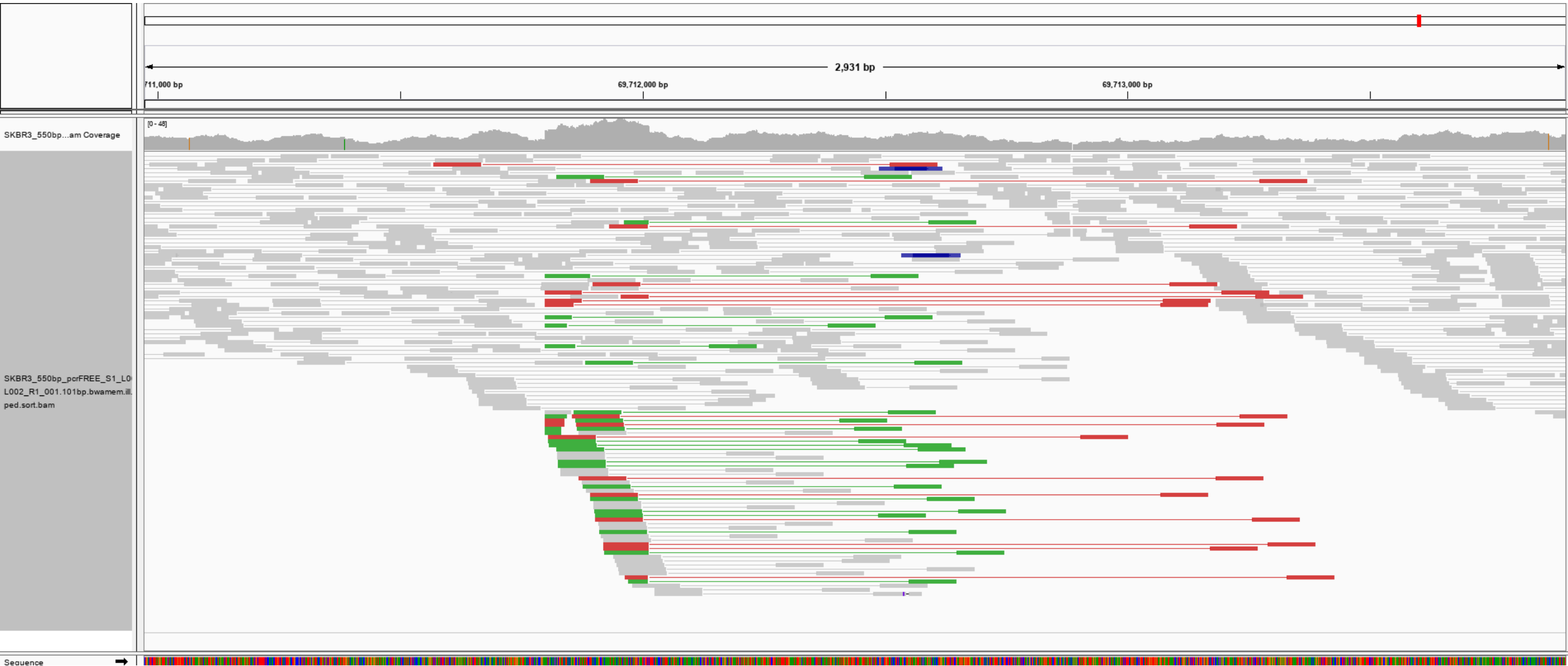
chr18:11509472-11511497



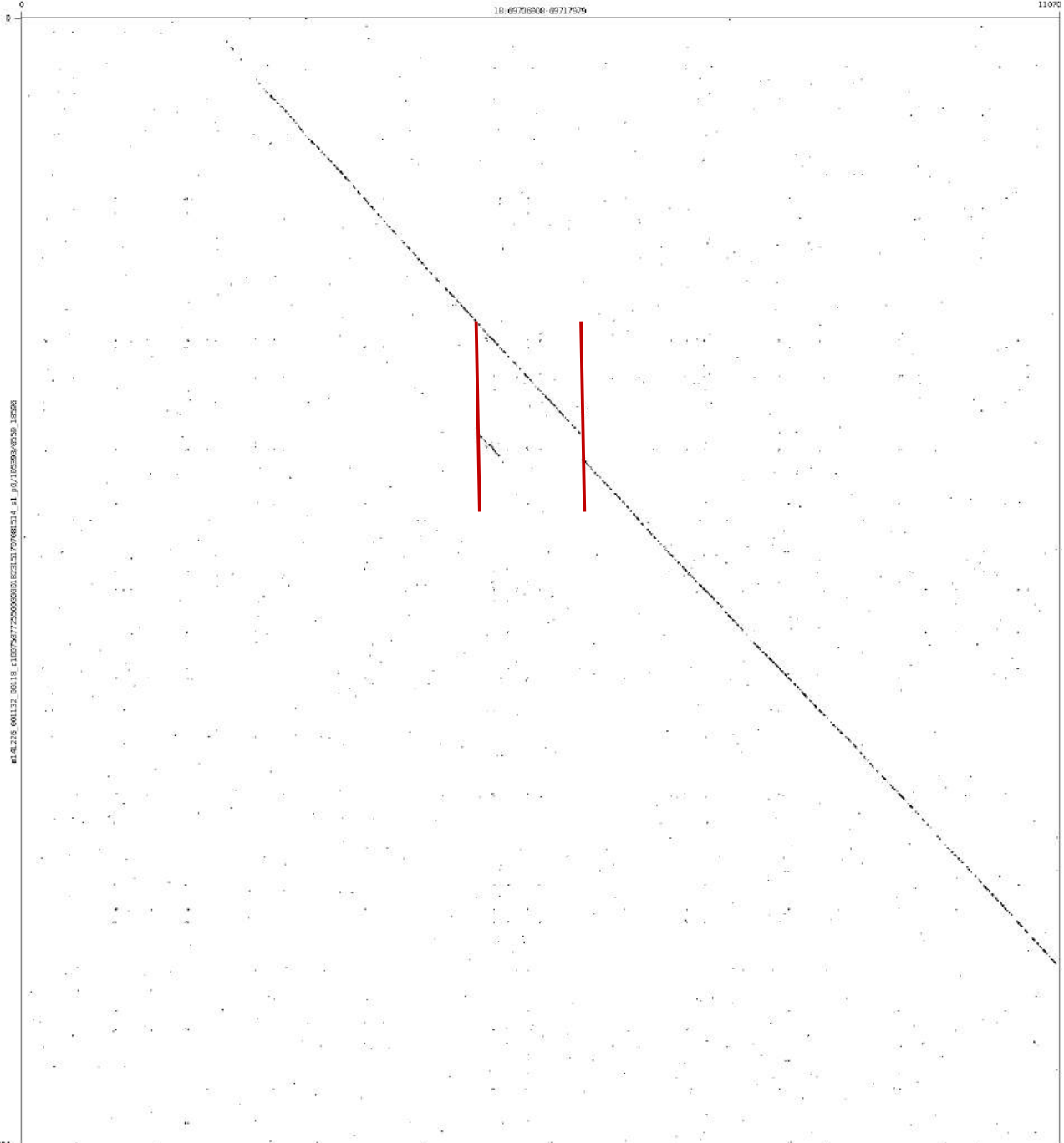
#141220\_033020\_42337\_c1007448025560000000.012156507071586\_s1\_p0/018200/290\_17020



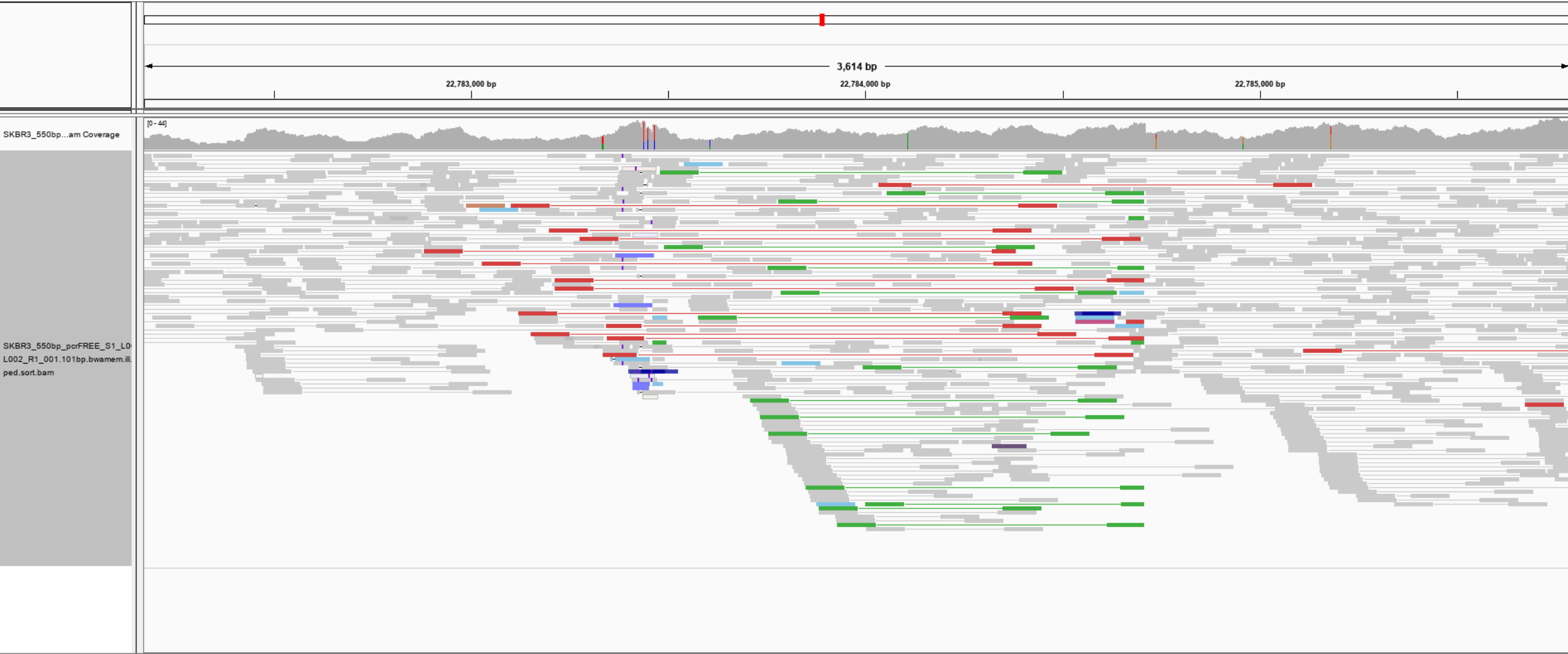
chr18:69711908-69712979







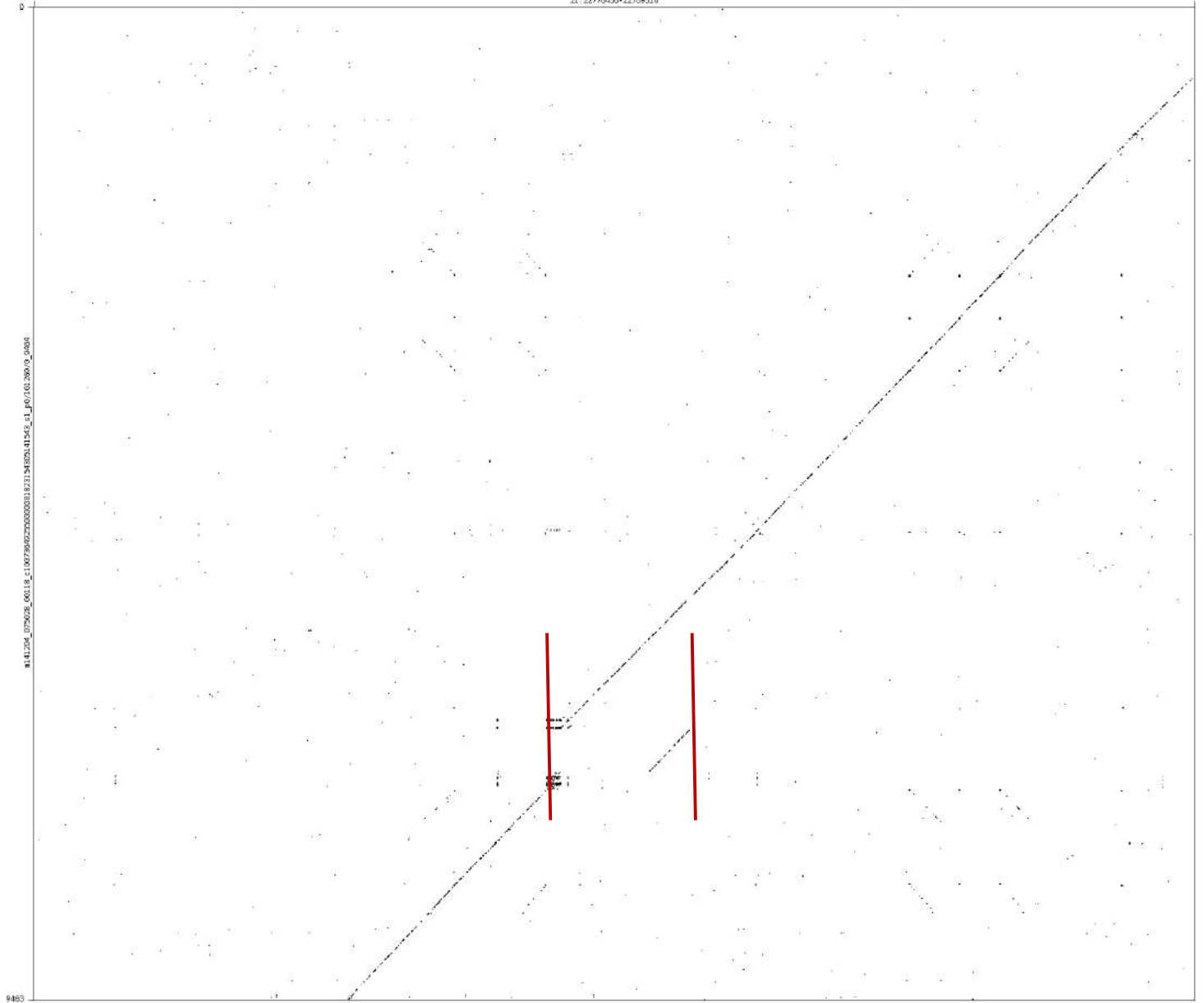
chr21:22783456-22784516



21:2278456-22789516 vs. #141204\_075029\_00110\_c1007304925580000010228543059415492\_e1\_p0/101209/0\_9404  
Zoon: 6 : 1  
Word length: 10 OC ratio seq1: 0.9480  
Window size: 0 OC ratio seq2: 0.2695  
Matrix: edna.mat Program: Gapped [1.40 final]

21:2278456-22789516

11096



9483