

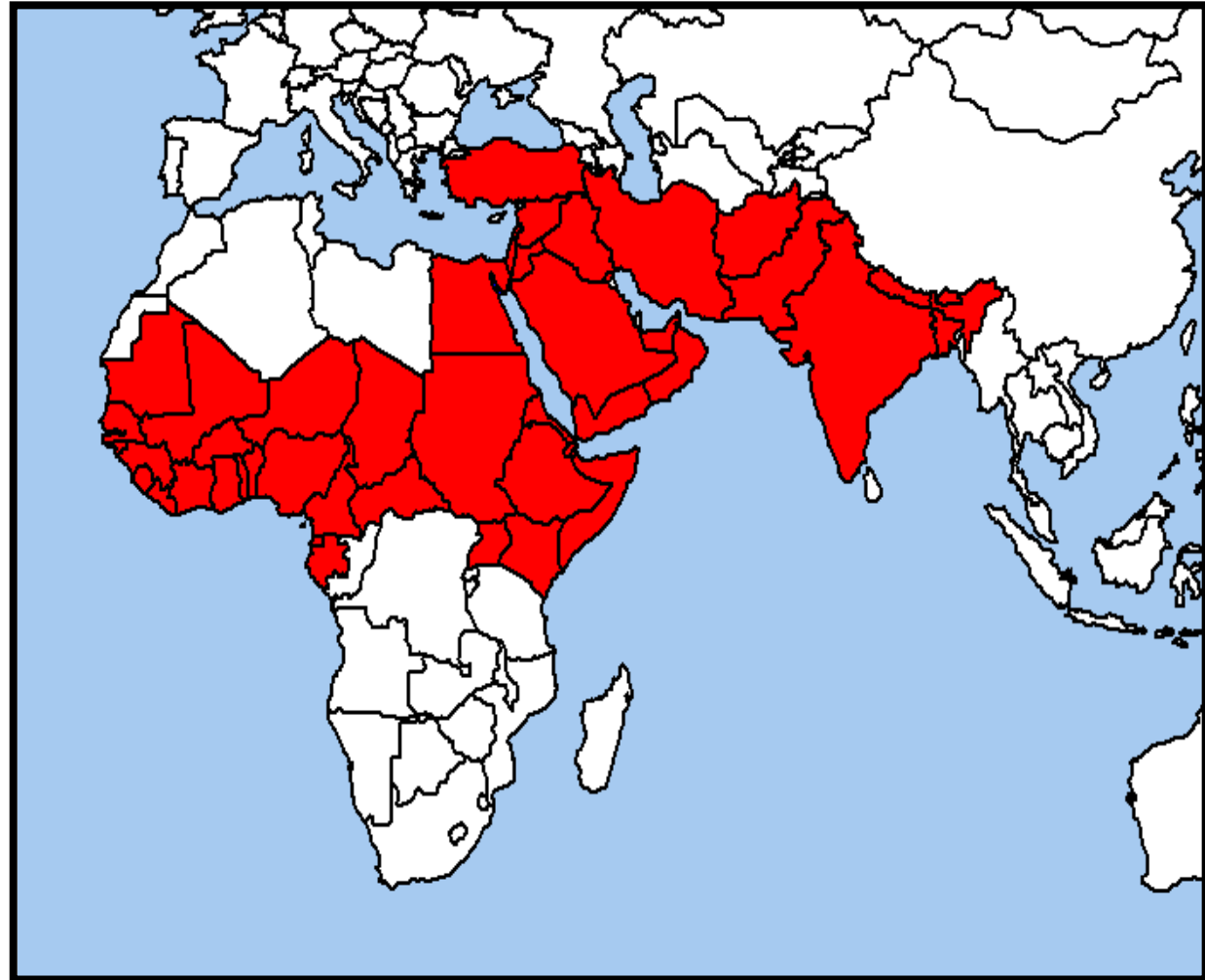
# 实用生物信息学期末汇报

## PPRV H蛋白结构分析与功能预测

第11组

梁丽琴 马雪青 郑建树 陈蕾

# Peste des petits ruminants virus, PPRV



# 汇报内容

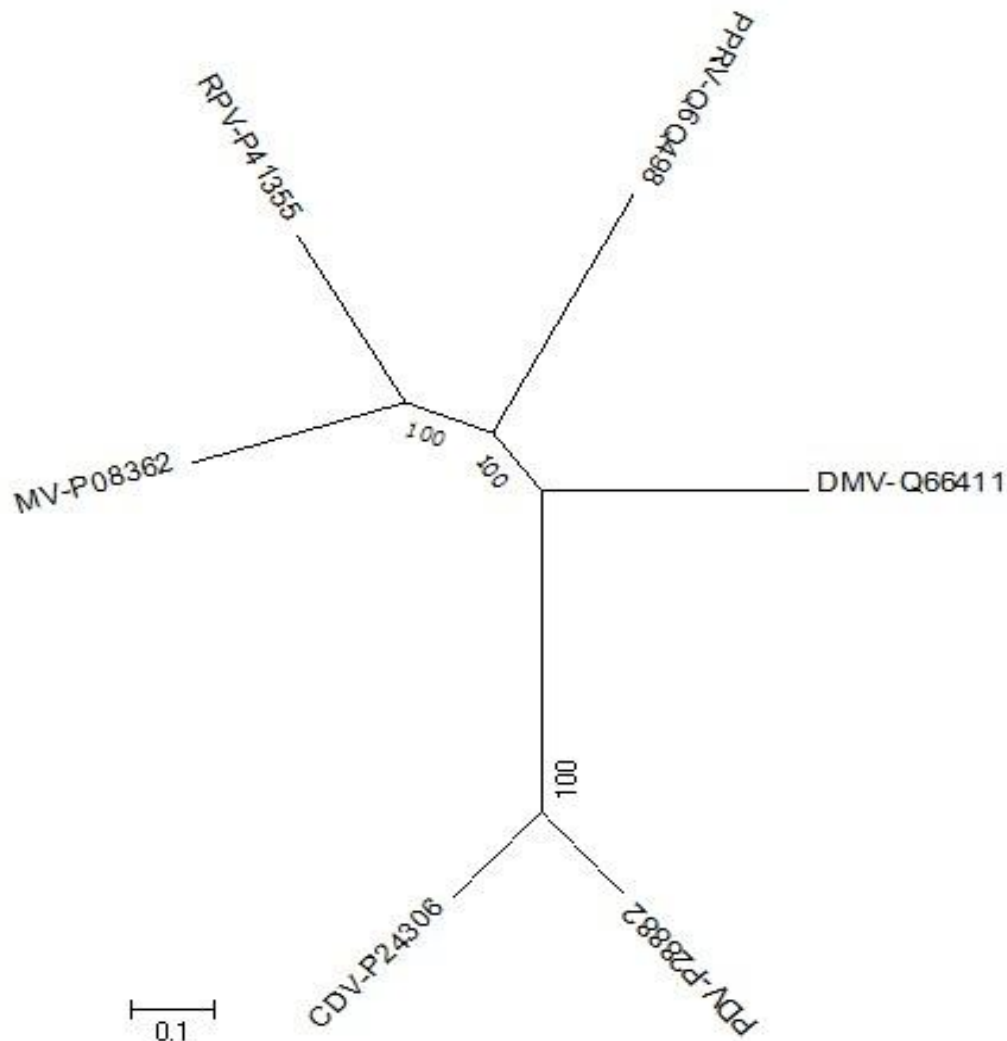
- Hemagglutinin, H蛋白序列分析
- 二级结构预测
- 3D模型构建
- 蛋白对接

# 第一部分 H蛋白序列分析

## 序列背景

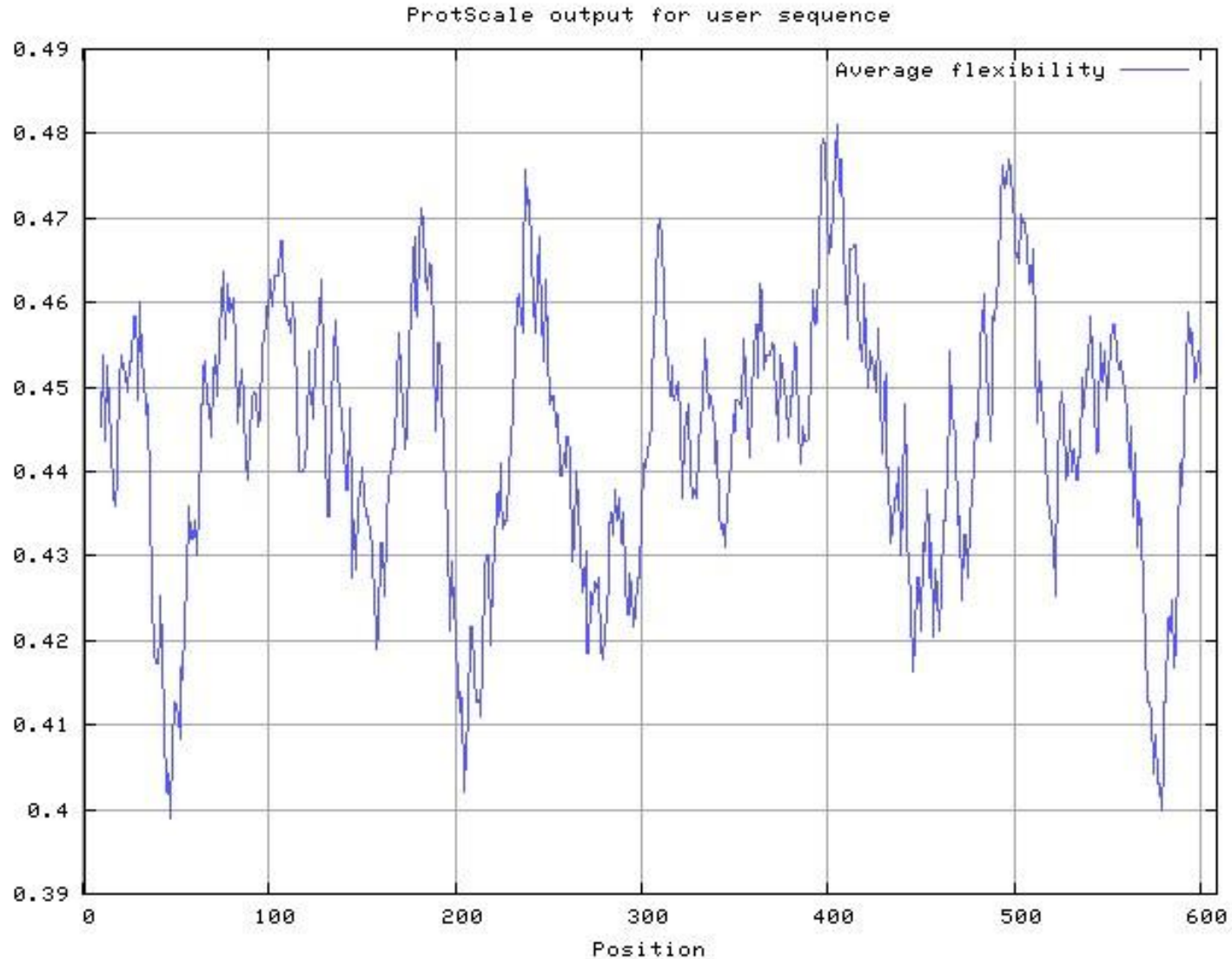
```
>tr|Q6Q498|Q6Q498_PPRV H protein OS=Peste-des-petits-ruminants virus PE=3 SV=1  
MSAQRERINAFYKGNPHNKNHRVILDRERLVIERPYILLGVLLVMFLSLIGLLAIAGIRL  
HRATVGTLEIQSRLNTNIELTESIDHQT KDVLTPFKIIGDEVGIRIPQKFSDLVKFISD  
KIKFLNPDREYDFRDLRWCMNPPERVKINFDQFCEYKAAVKSIEHIFESPLNKSKKLQSL  
TLGPGTGCQGRTVTRAHFSELTTLMDLDLEMKHNVS SVFTVVEEGLFGRTYTVWRSDAR  
DPSTDPGIGHFLRVFEIGLVRDLGLGPPVFHMTNYLTVNMSDDYRRCLLAVGELKLTALC  
TSSETVTLSERGVPKRKPLVVILNLAGPTLGGELYSVLPTSDLMVEKLYLSSHARGI IKD  
DEANWVVPSTDVRDLQNKGECLVEACKTRPPSFCNGTGSGPWSEGRIPAYGVIRVSLNSA  
SDPGVVITSVFGPLIPHLSGMDLYNNPFSRAVWLAVPPYEQSFLGMINTIGFPNRAEVMP  
HILTTEIRGPRGRCHVPIELSRRVDDDIKIGSNMVILPTMDLRYITATYDVSRRREHAIVY|  
YIYDTGLSSSYYPVRLNFKGNPLSLRIECPWRHKVWCYHDCLIYNTITDEEVHTRGLT  
GIEVTCNPV
```

# PPRV与其他麻疹病毒属病毒进化树分析



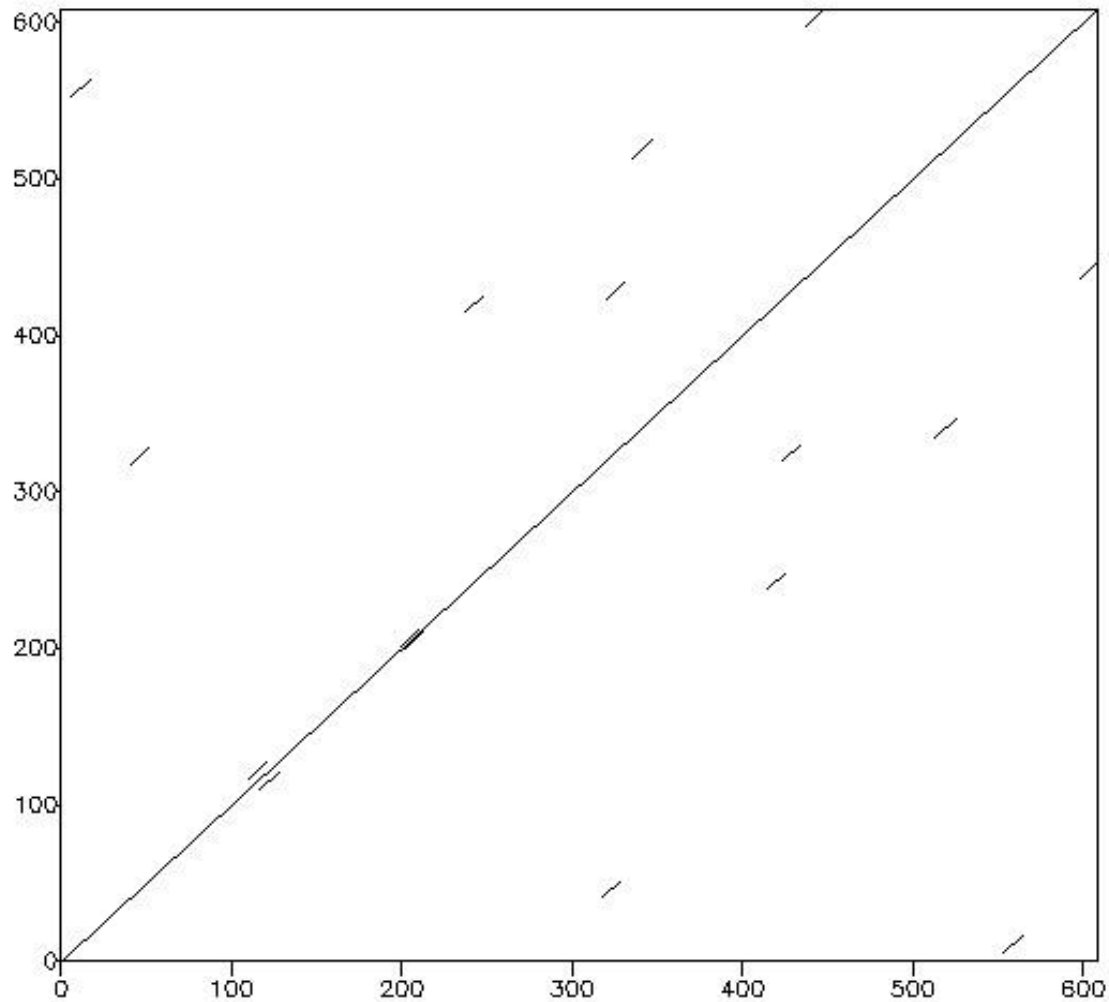
# 第二部分 蛋白二级结构分析及预测

## H蛋白柔性分析

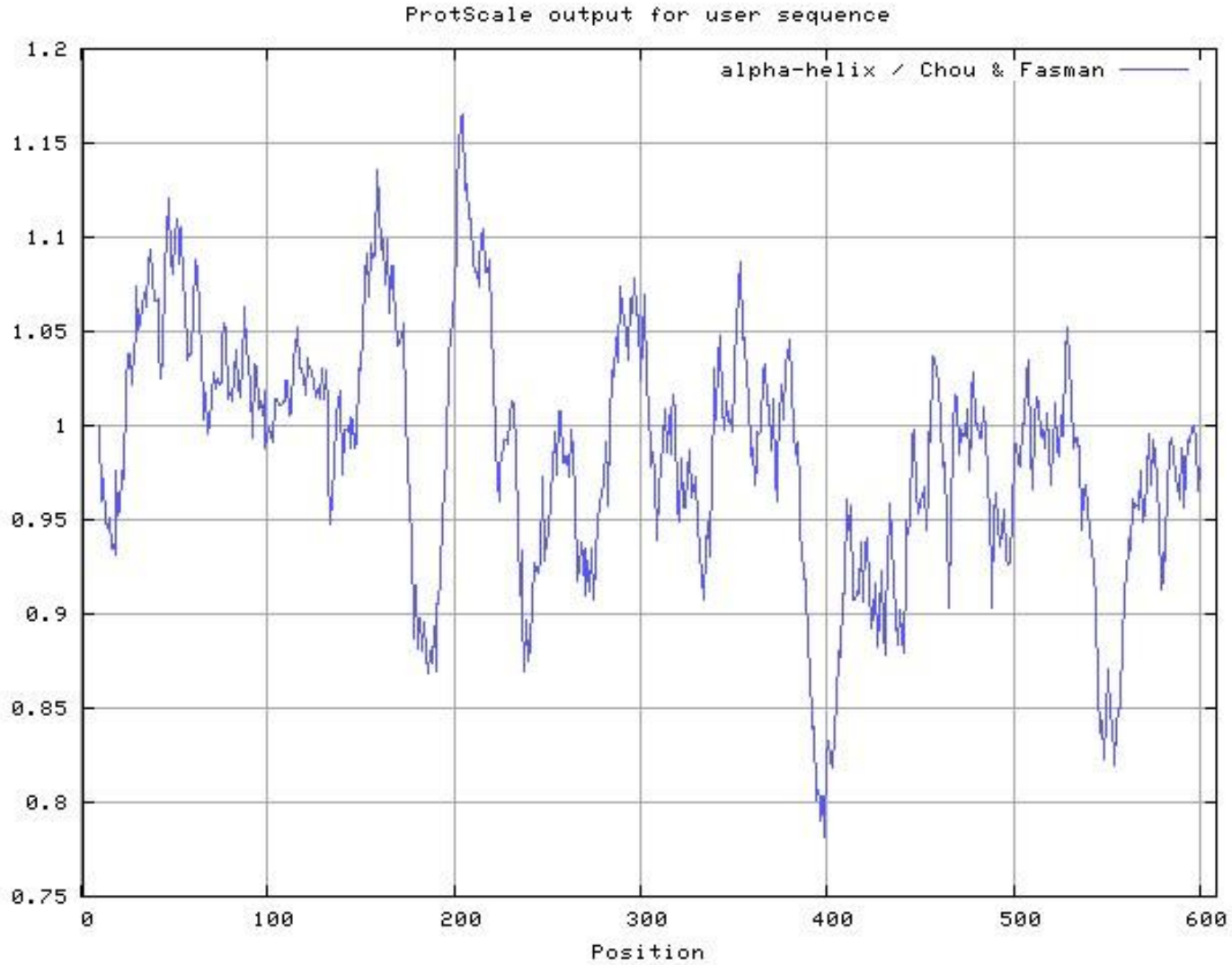


# H蛋白重复序列分析

Dotmatcher: raw::493538 vs raw::493538  
(windowsize = 10, threshold = 23.00 24/12/11)

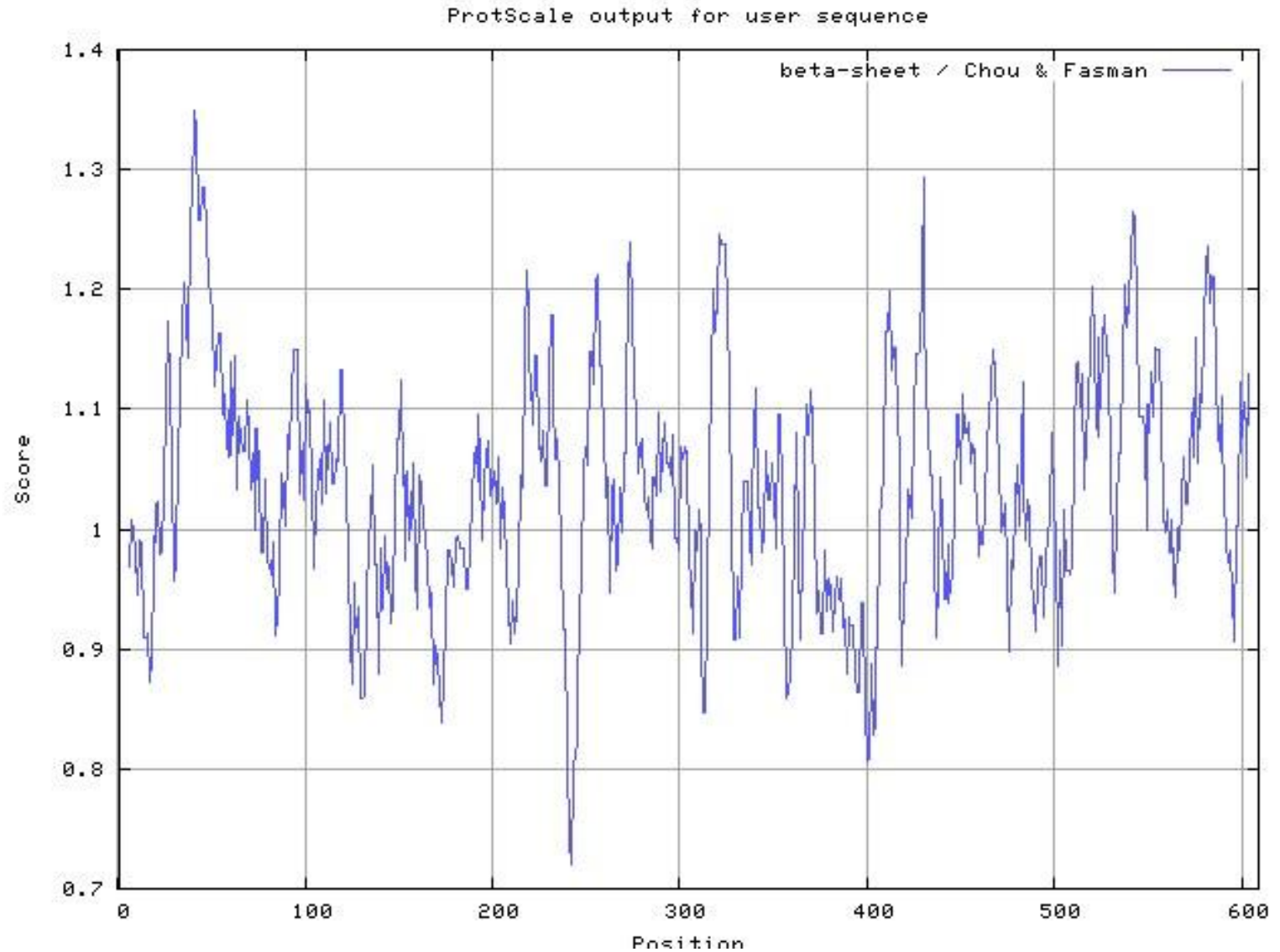


# Alpha-helix分析

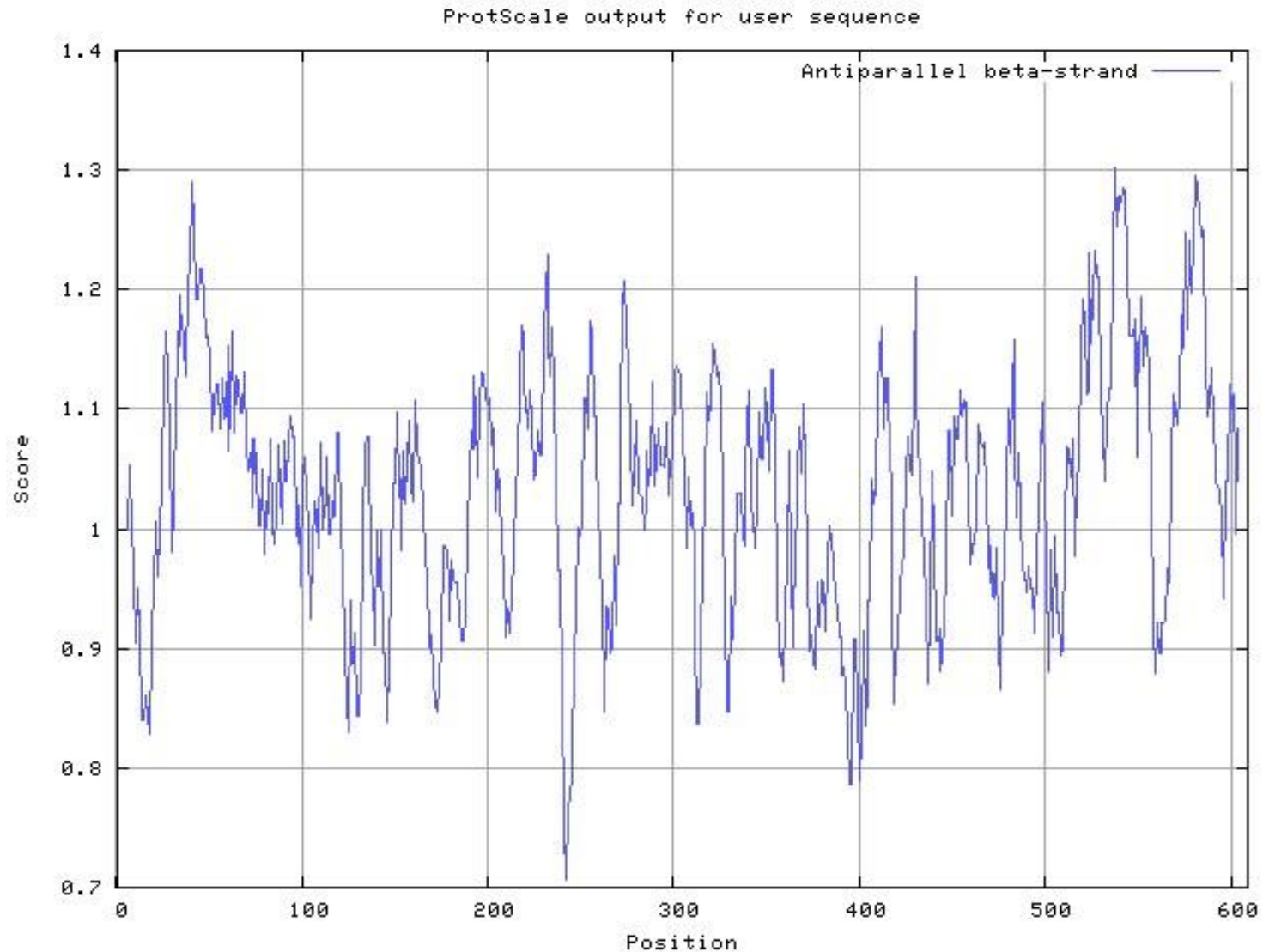




# Beta-sheet分析

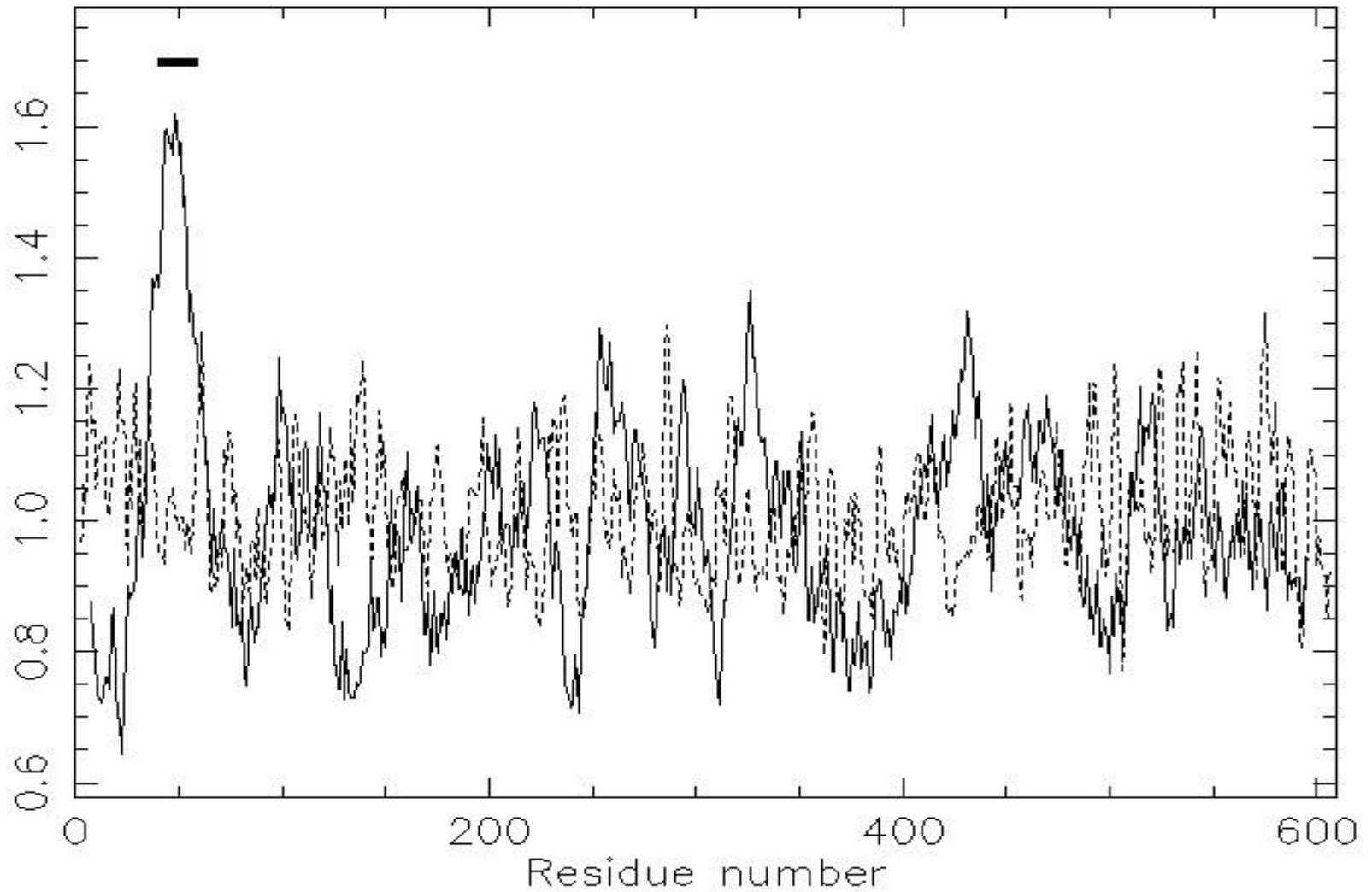


# Antiparallel beta-strand分析

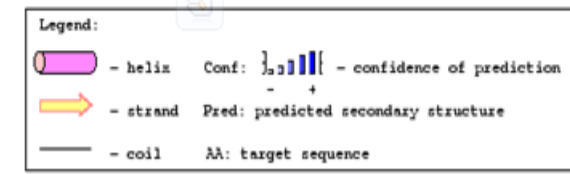
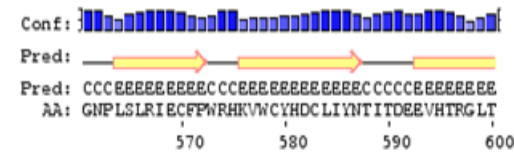
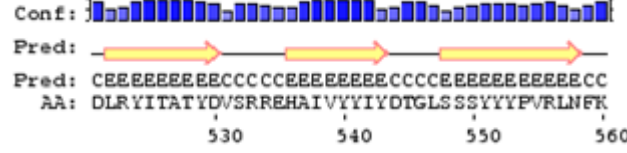
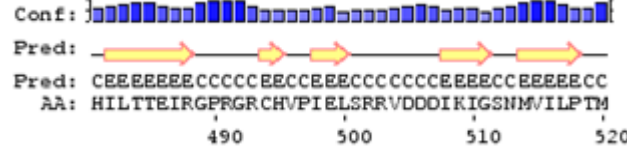
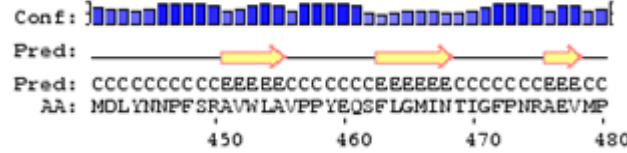
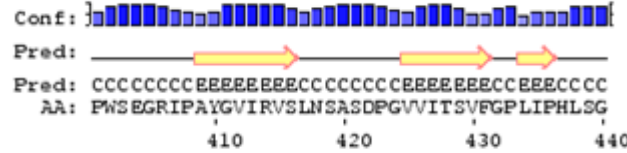
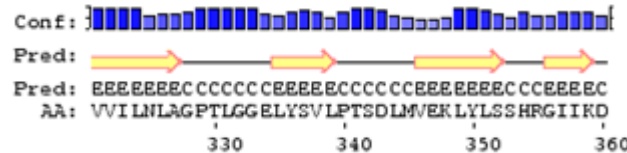
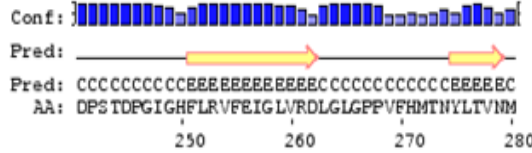
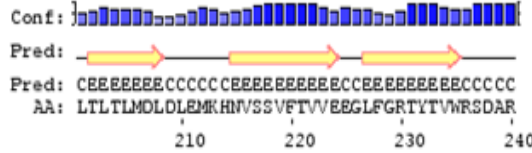
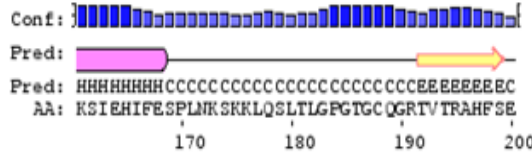
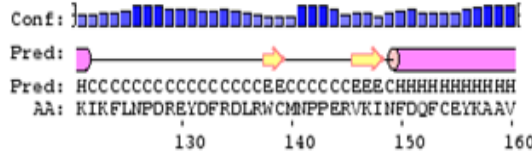
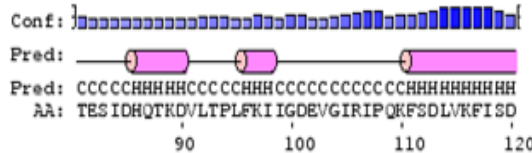
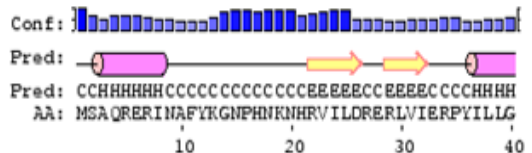


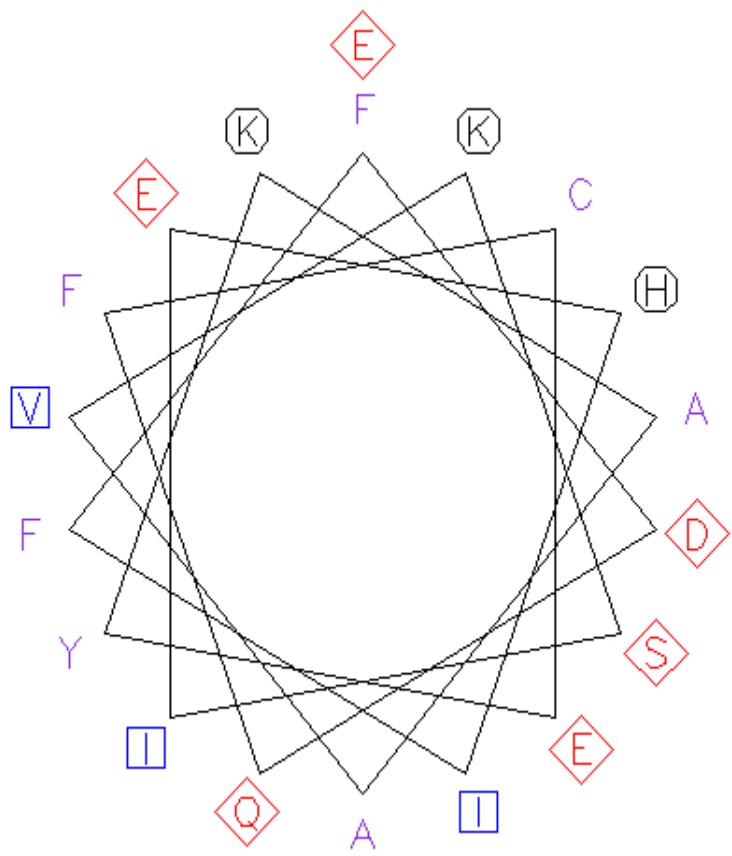
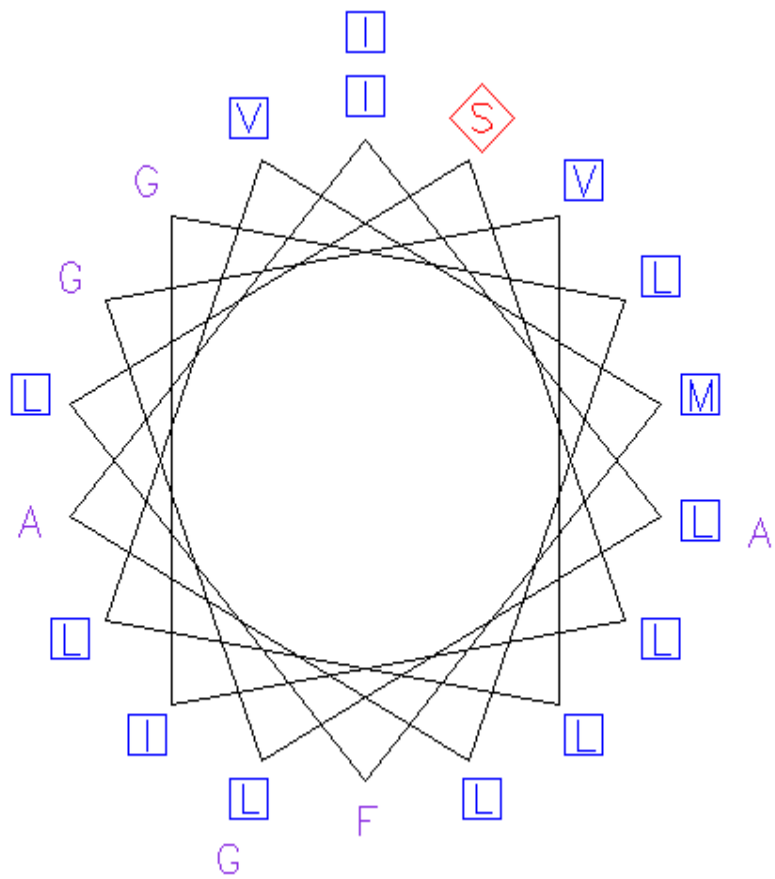
# 跨膜预测

Tmap



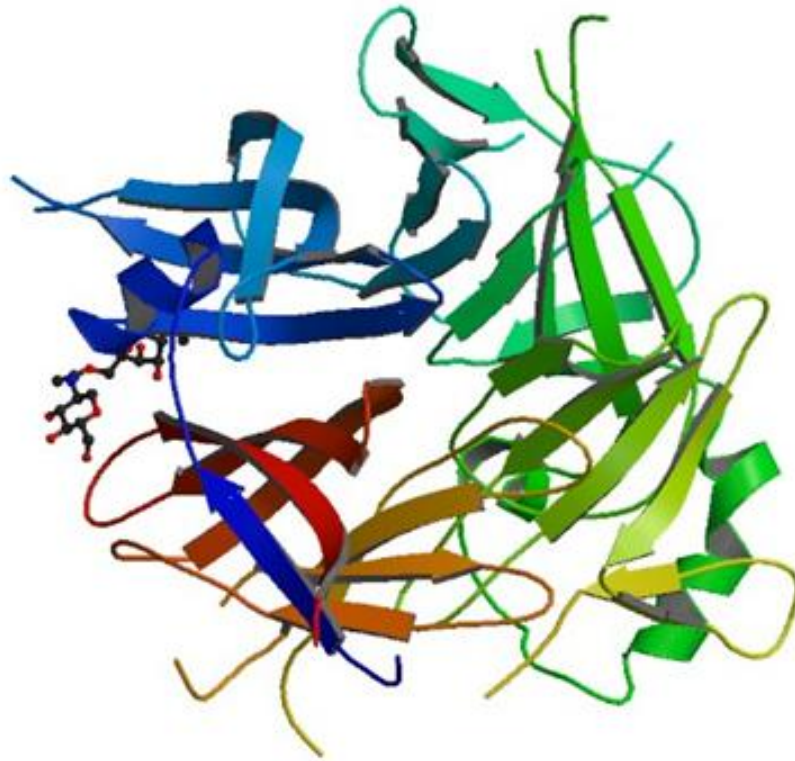




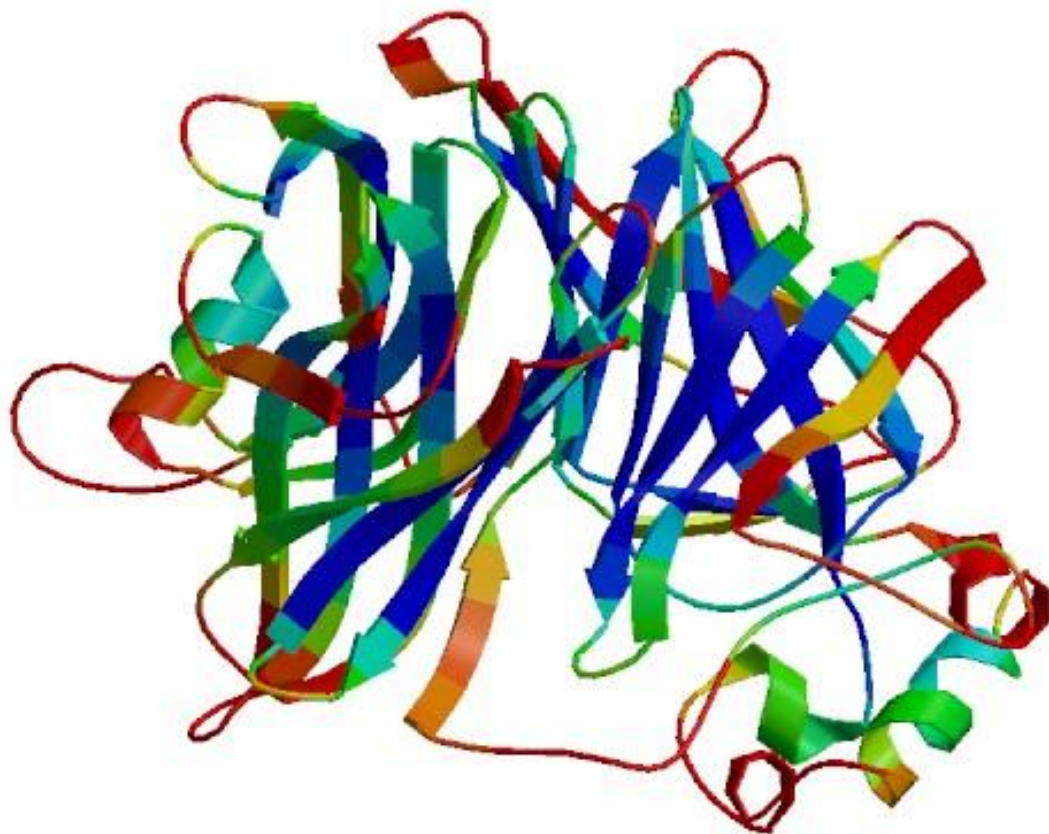


# 第三部分 H蛋白同源模建

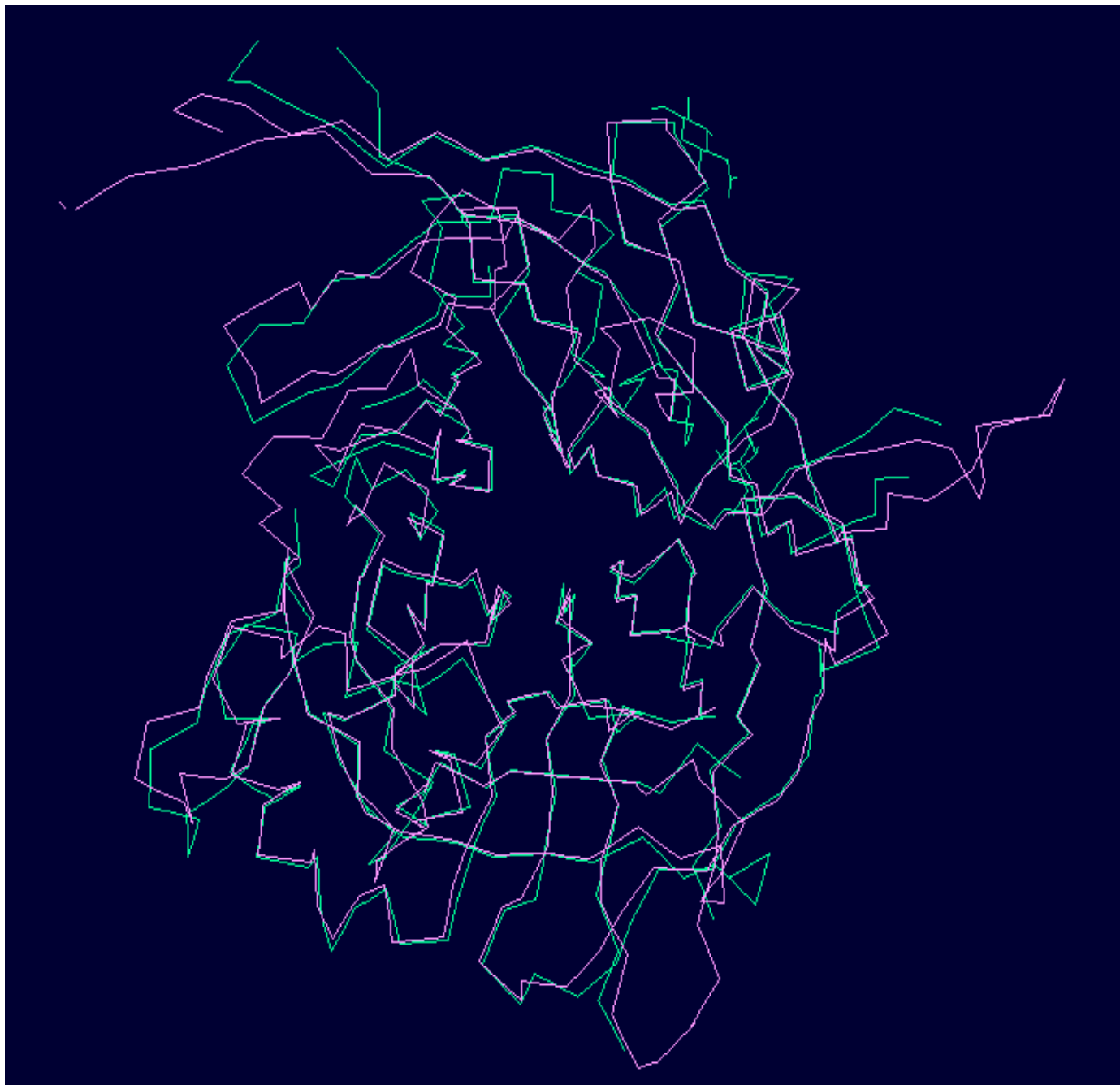
模板：Measles virus H (ID: 2RKC)

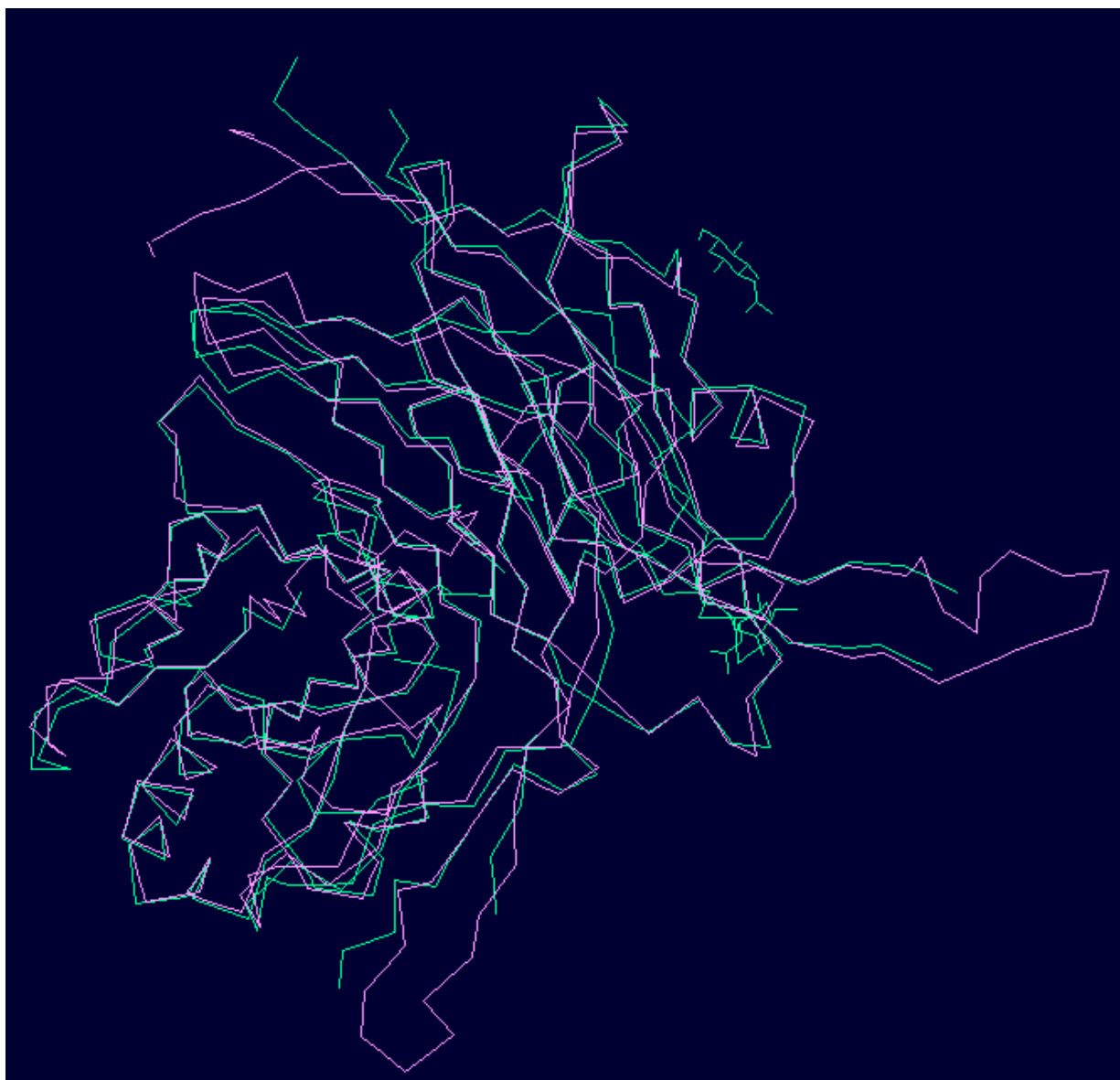


同源模建结果：PPRV H



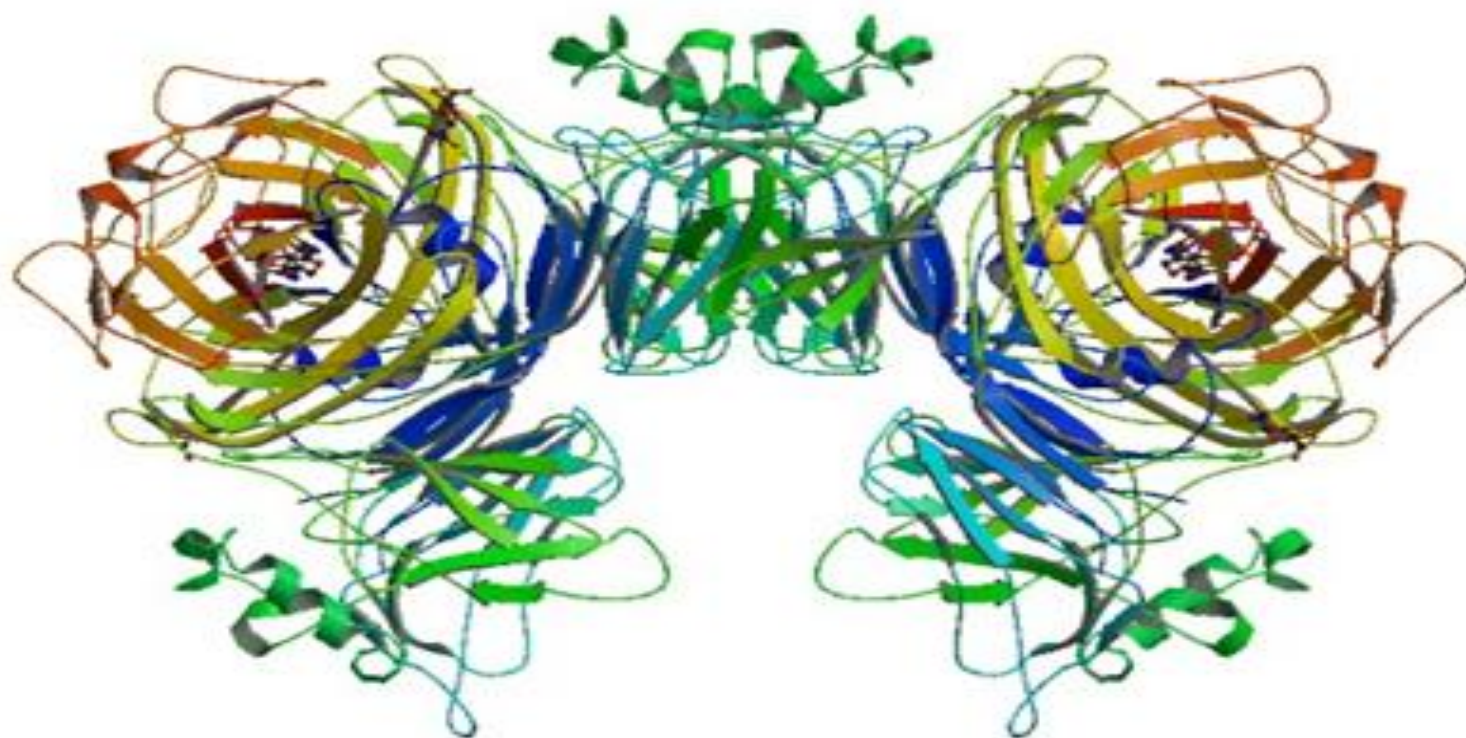




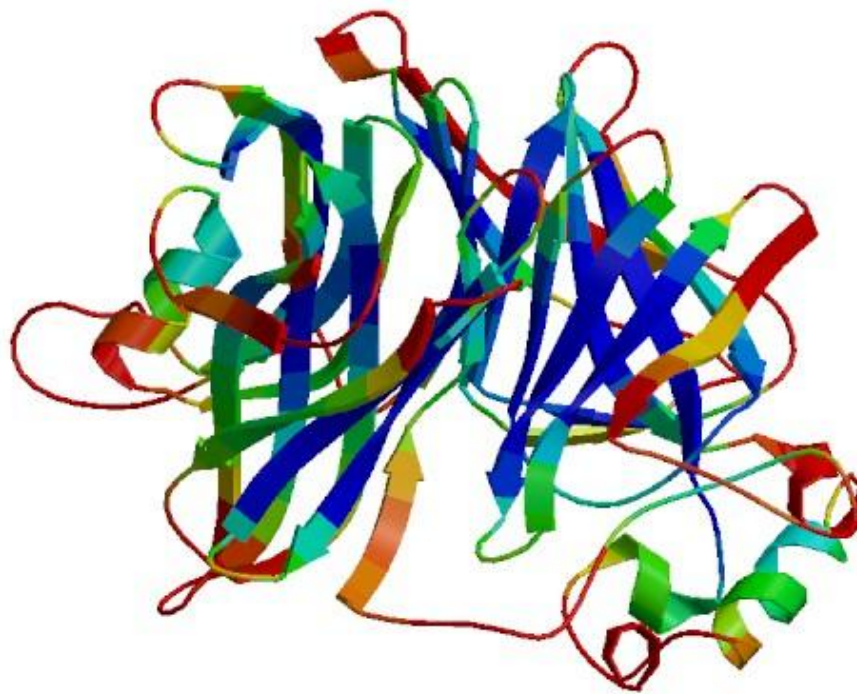


# 第四部分 蛋白对接

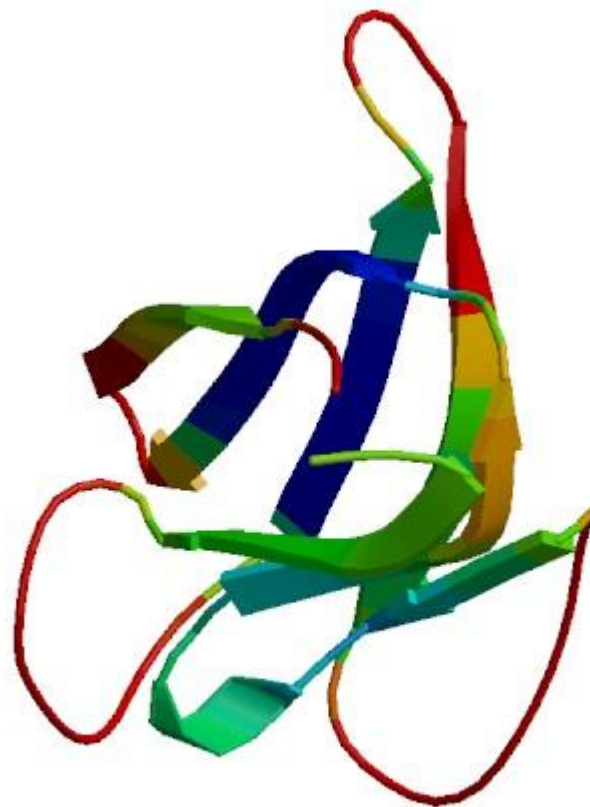
Measle virus 与SLAM-human晶体图 (ID: 3ALW )



# 材料

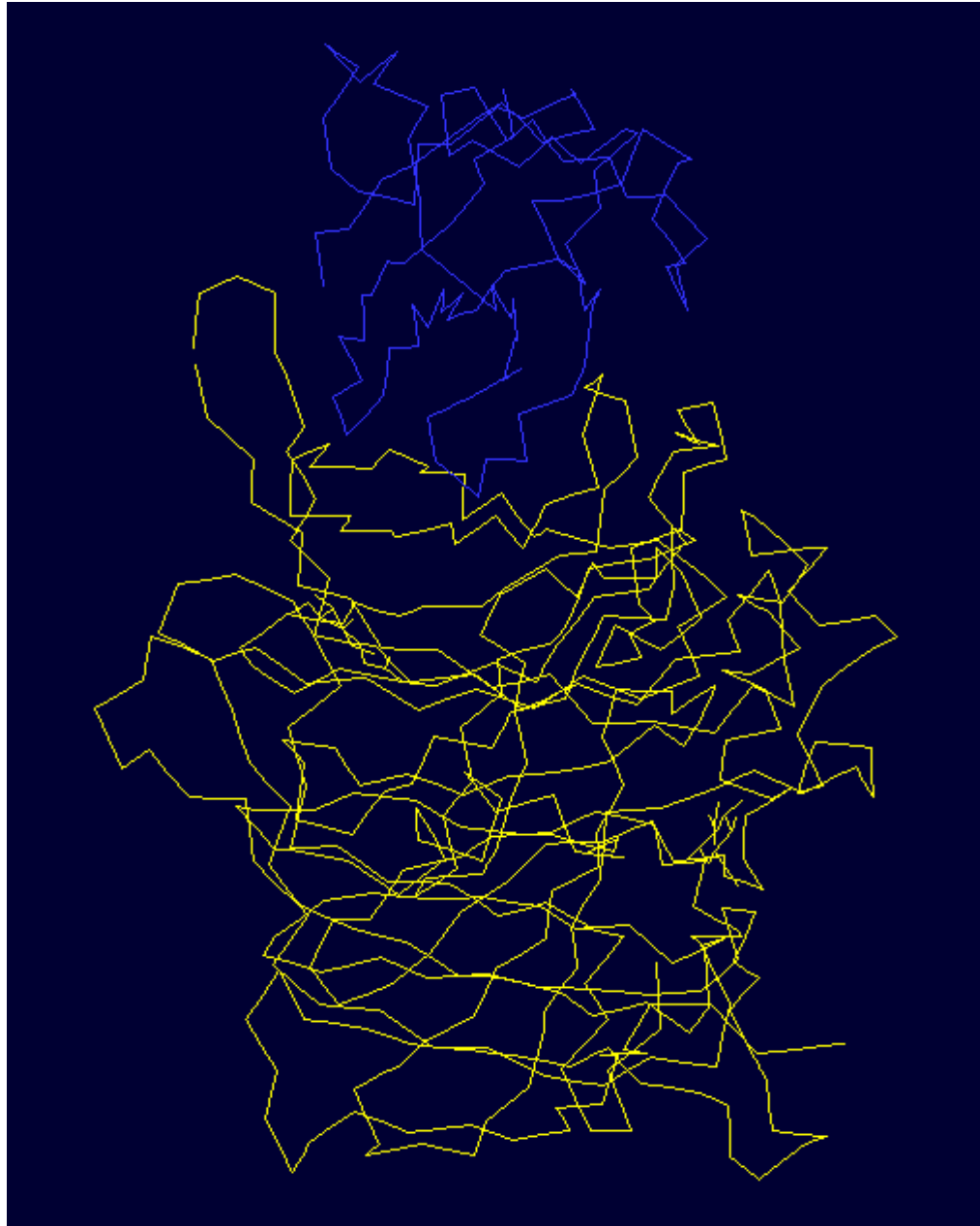


PPRV-H

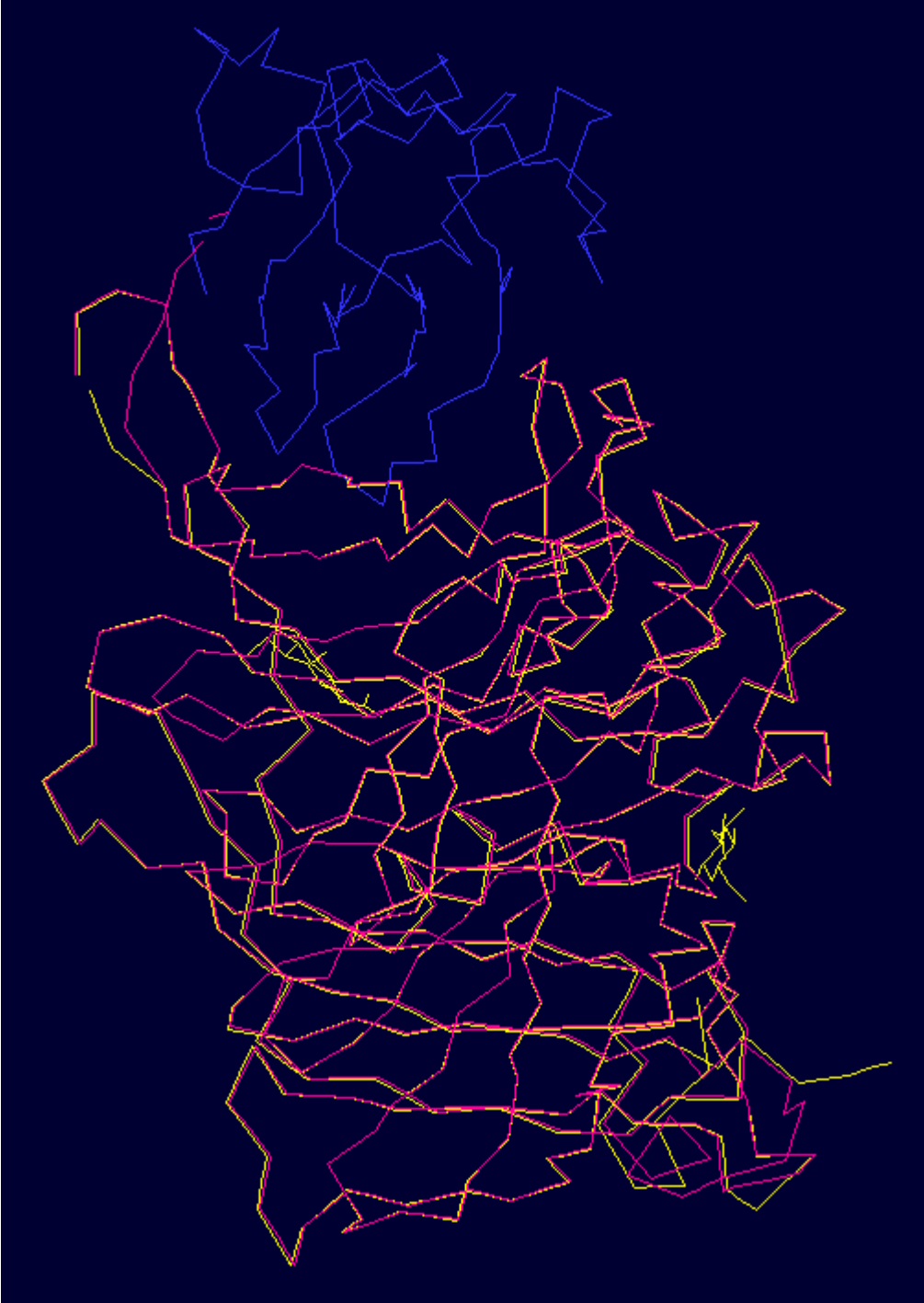


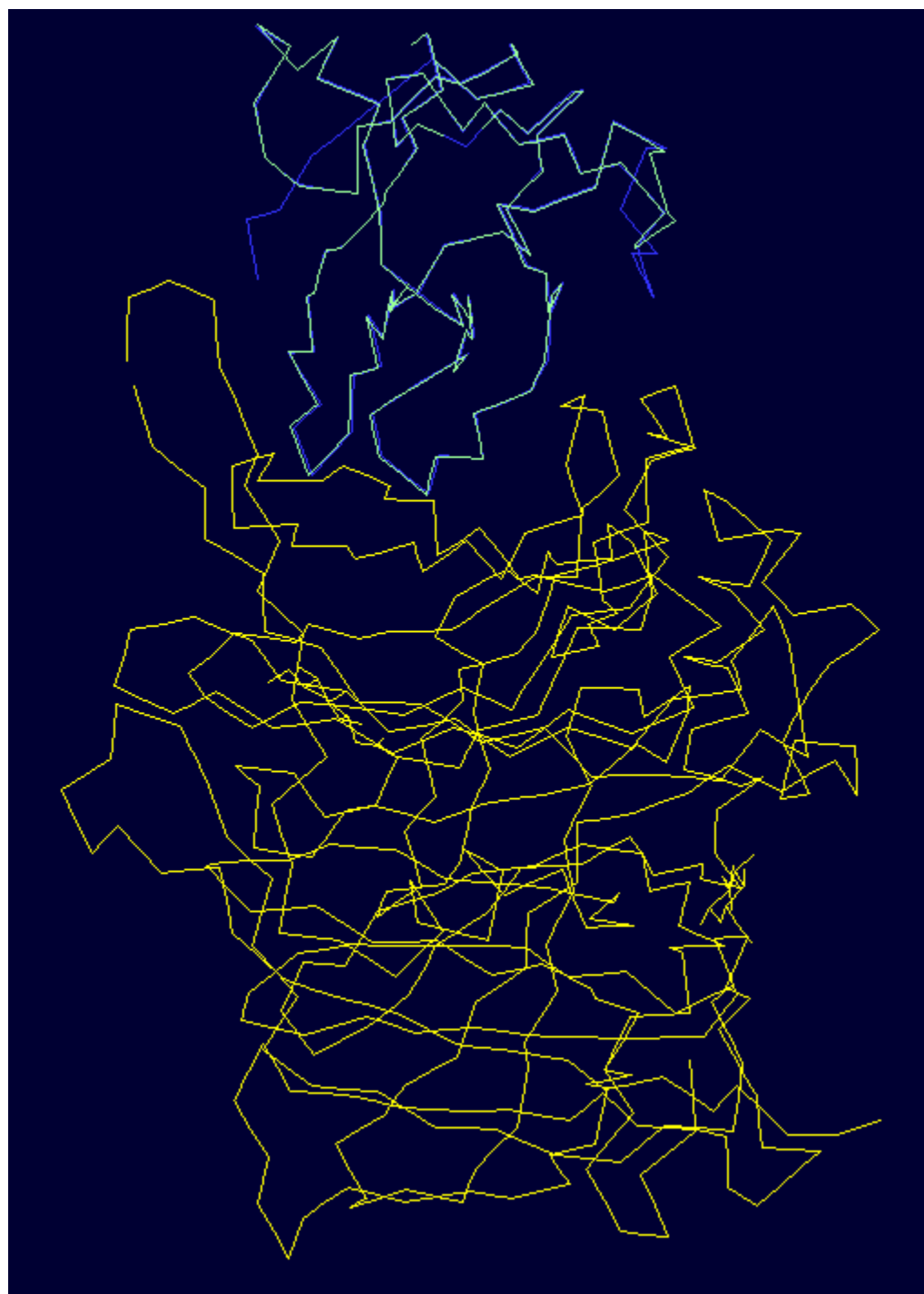
SLAM-sheep

# MV-SLAM (ID: 3ALZ)

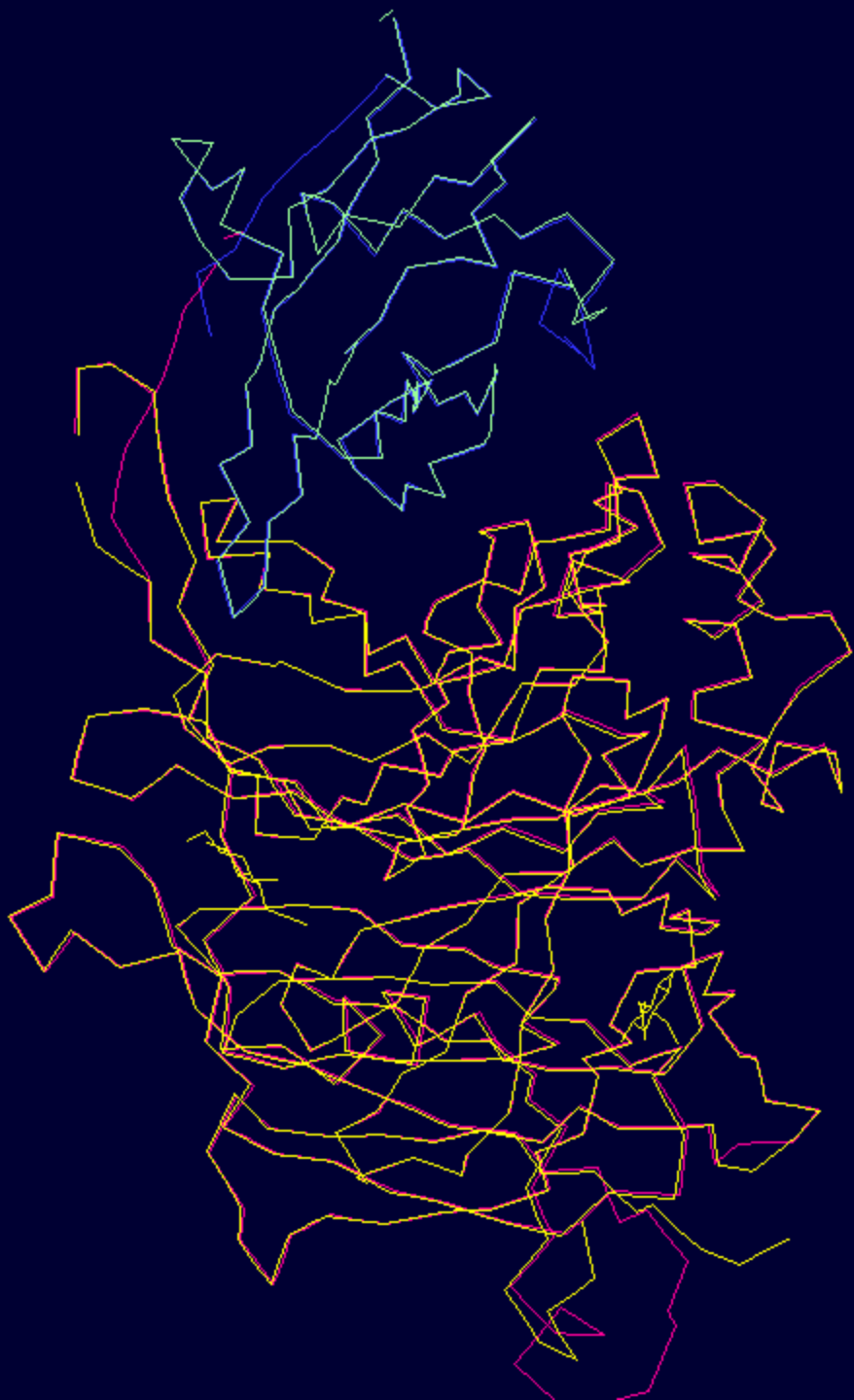












ILE53 CA -

GLU52 CA -

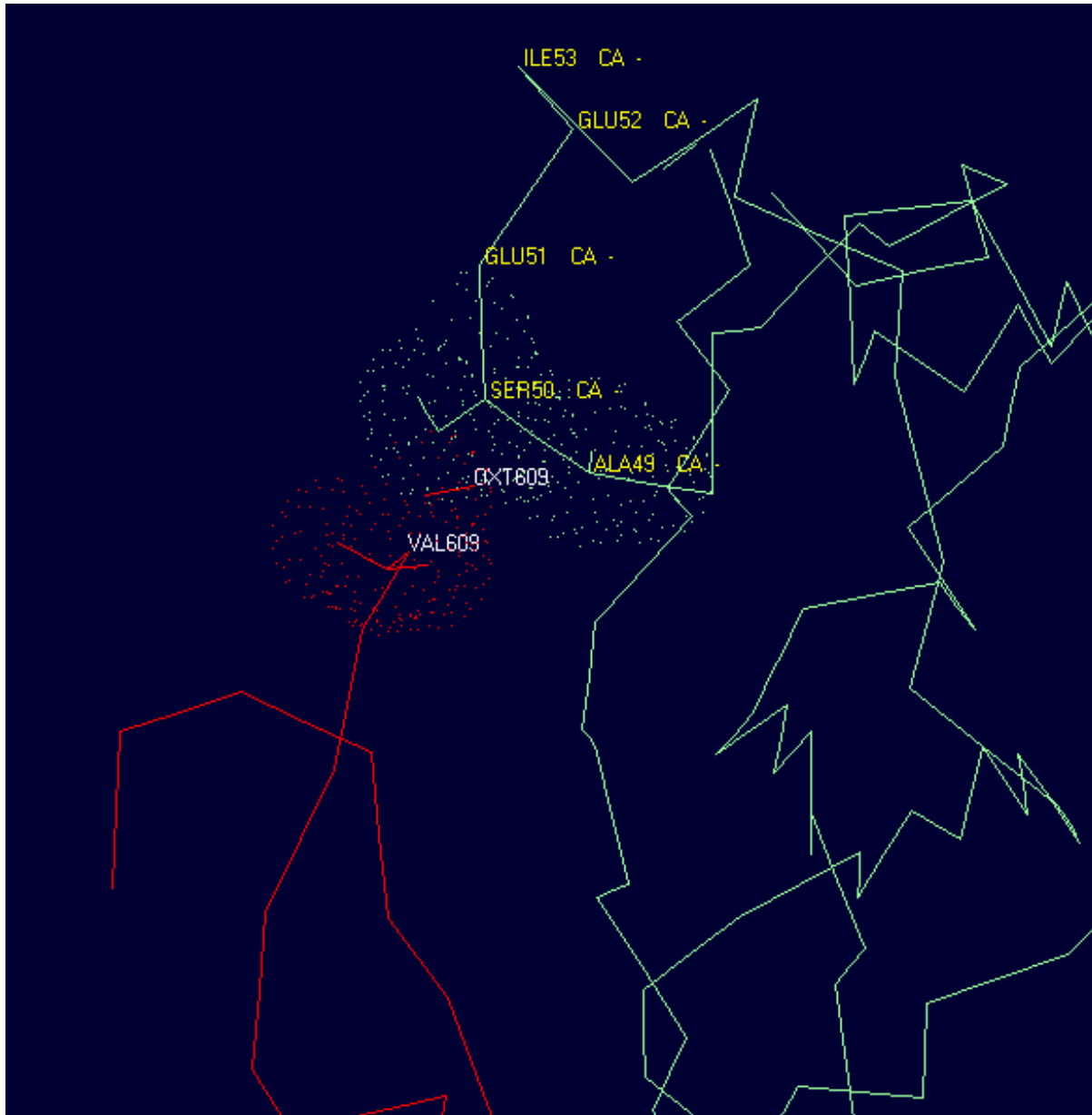
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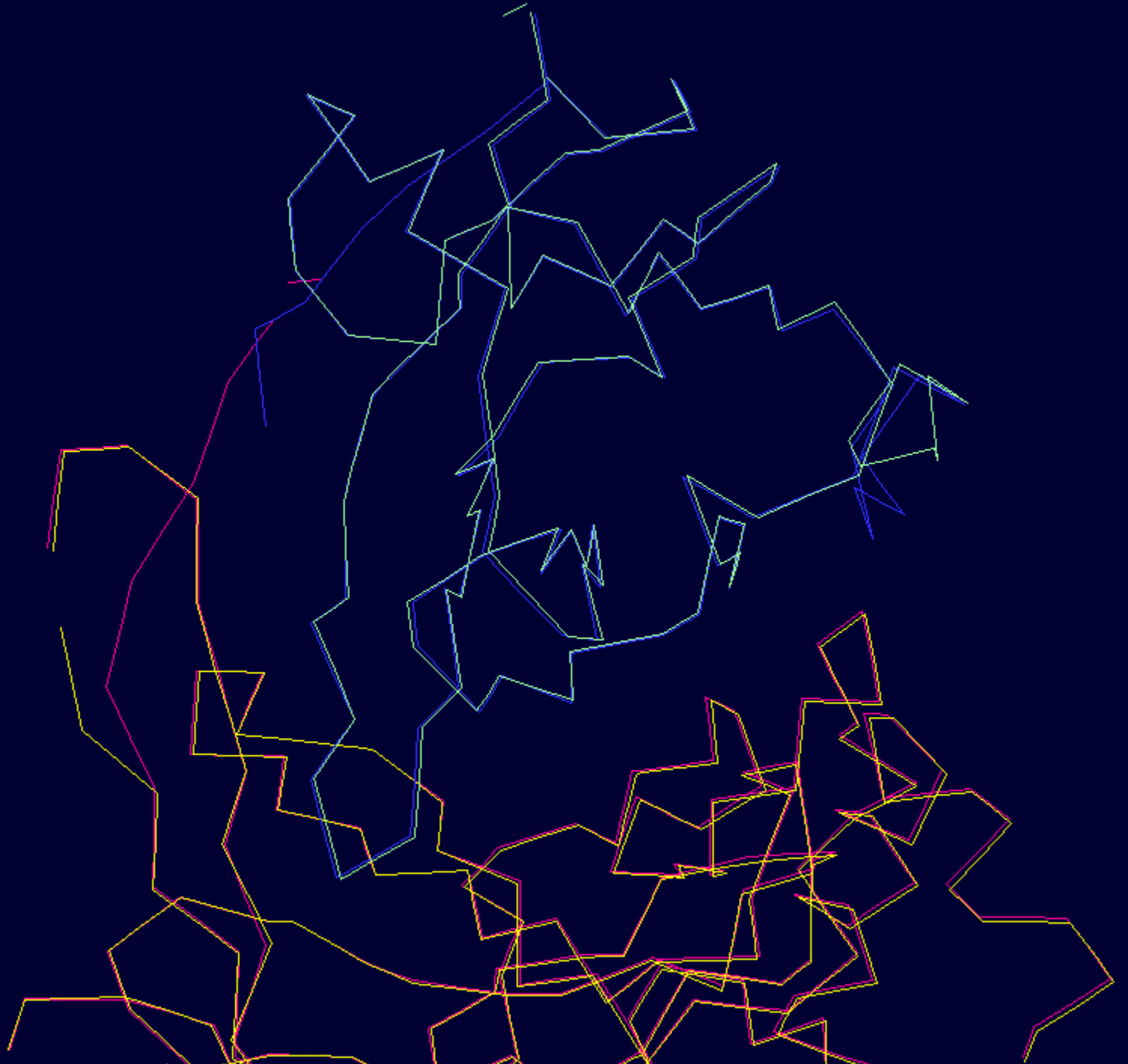
SER50 CA -

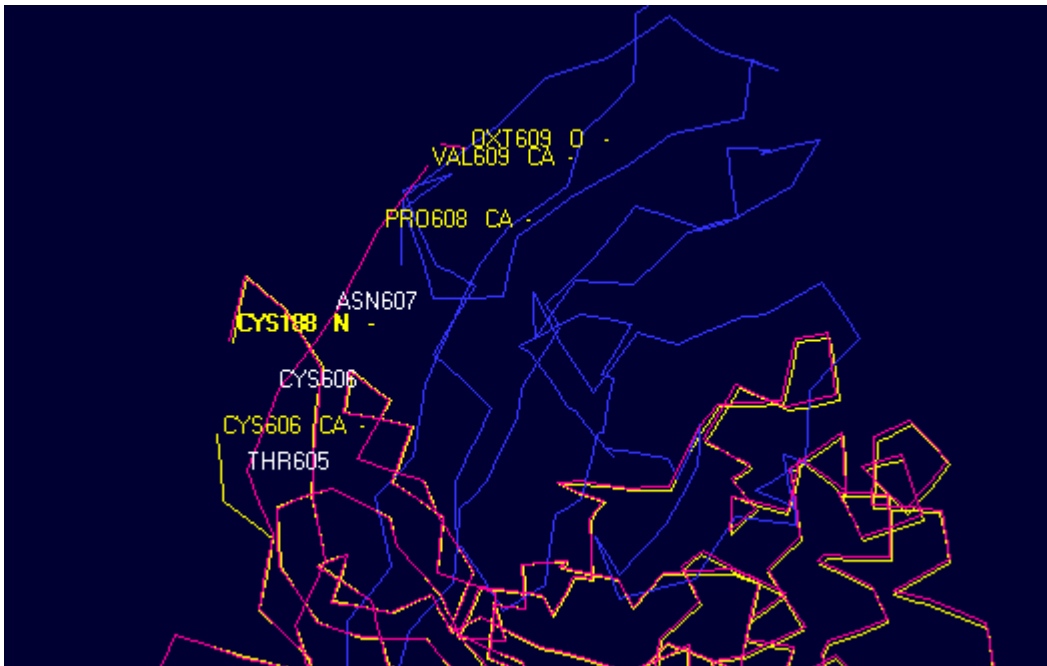
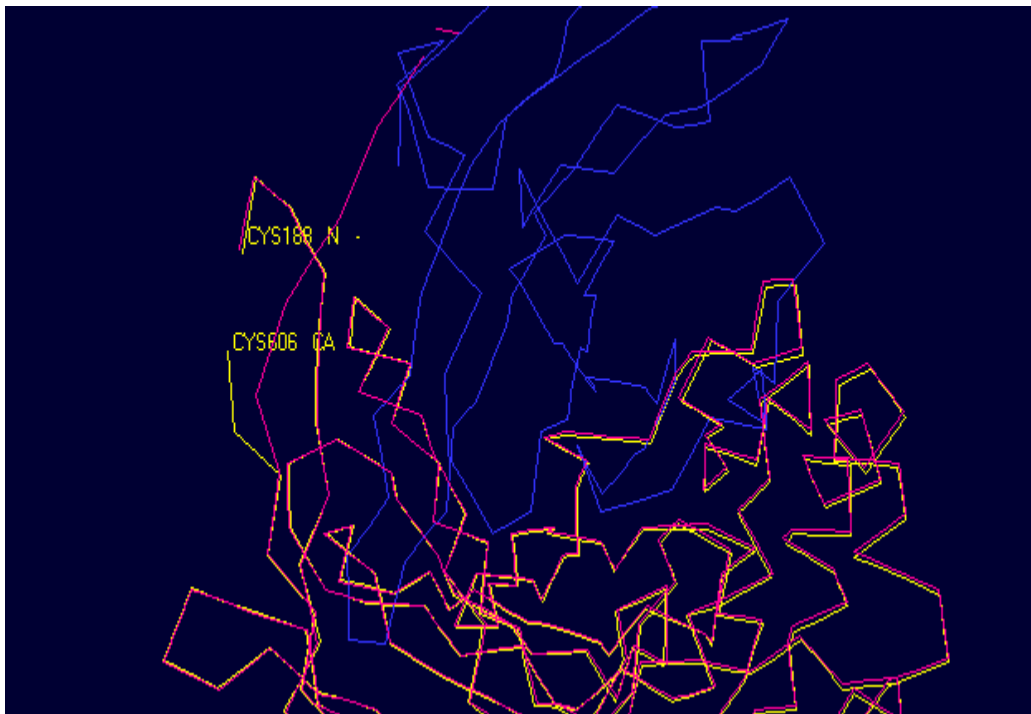
ALA49 CA -



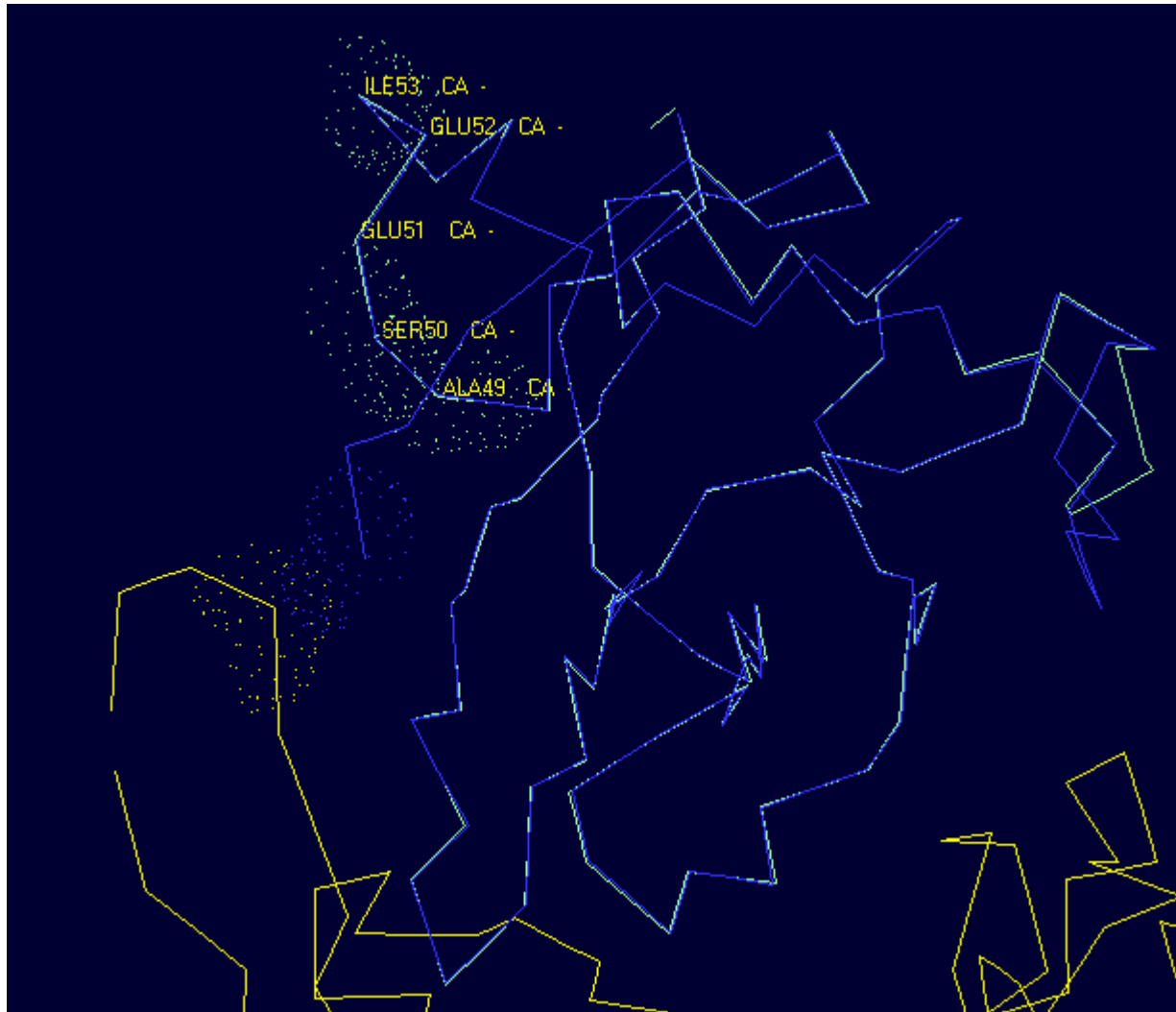
# PPRV&SLAM\_sheep







# SLAM-sheep&3ALZ



# 讨论

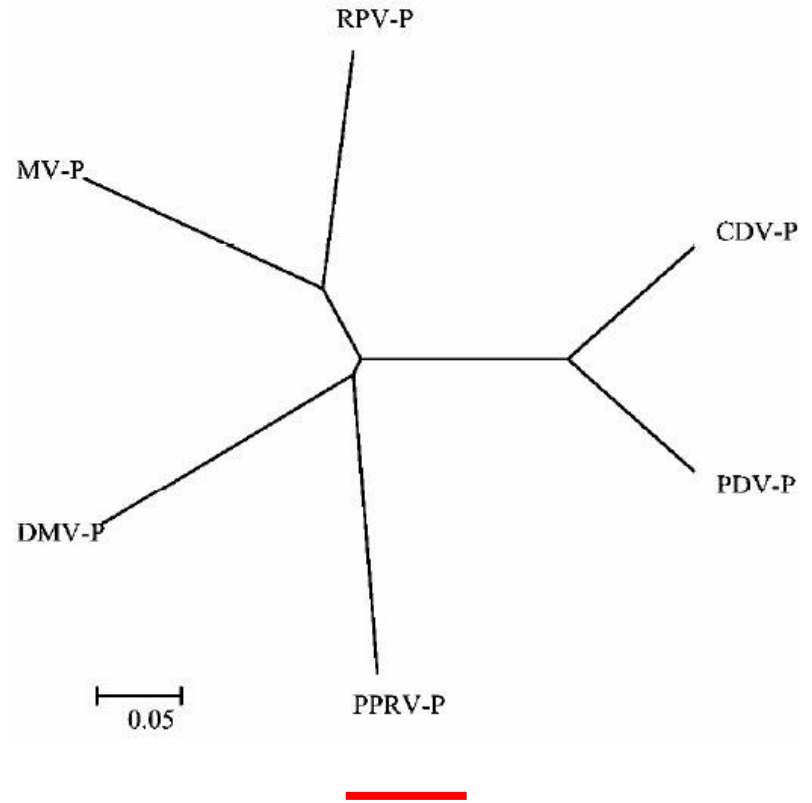
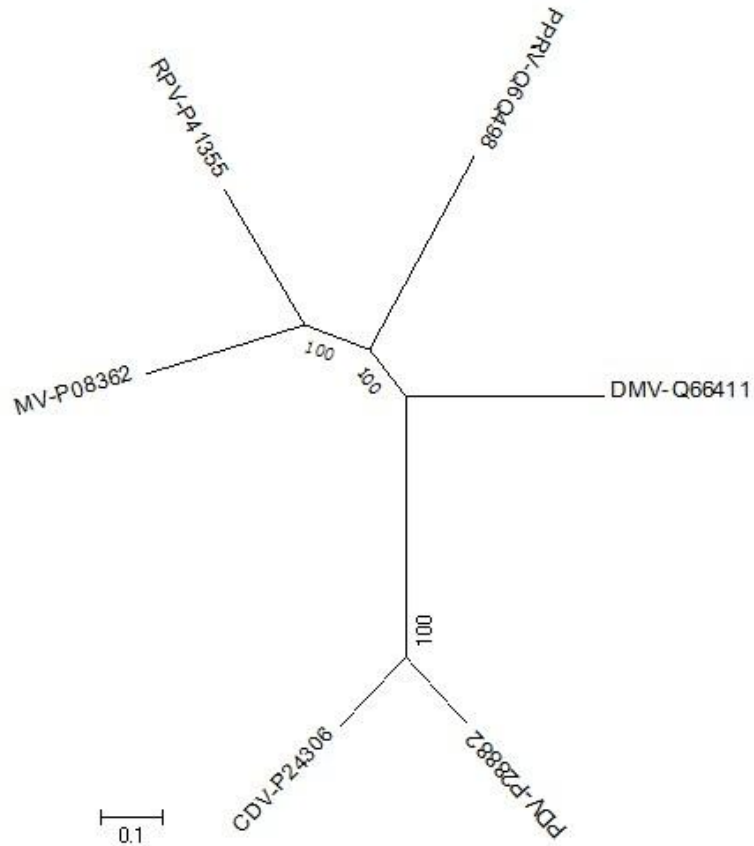


图 5 PPRV 和其它麻疹病毒 phosphoprotein 的进化树

## 小反刍兽疫病毒 P 基因的克隆及其结构与功能分析

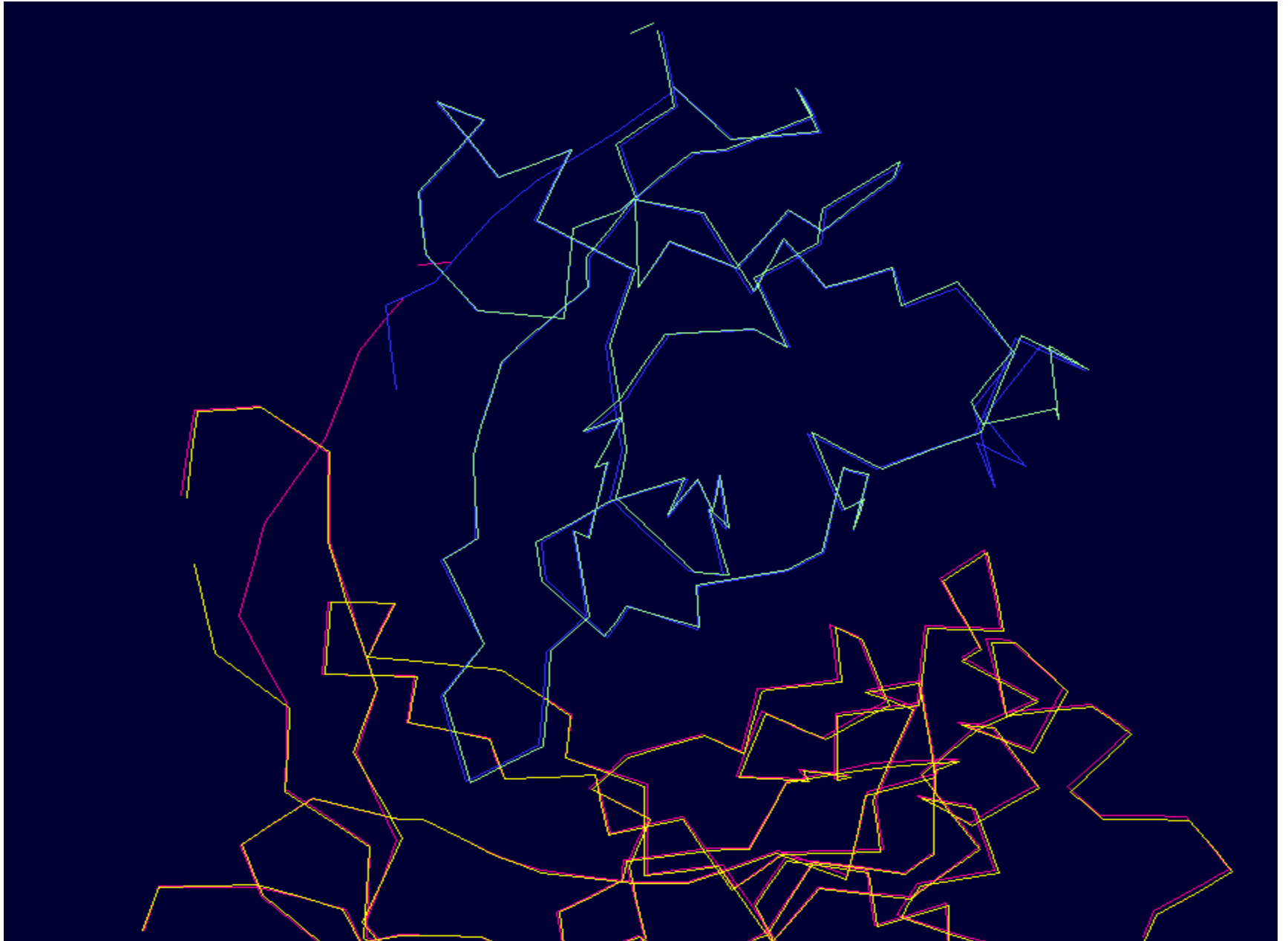
翟军军, 窦永喜, 张海瑞, 毛立, 蒙学莲, 骆学农, 才学鹏

MV	1	-SGPTTIRGQFSNMSLSLLDLYLGRGYNVSSIVTMTSQGMYGGTYLVEK-	48
PPRV	1	CQGRITVTRAHF SEL TL TLMDLDLEMKHNVS SVFTVVEEGLFGRTYTVWRS	50
MV	49	-----PIQLSMYRVFEVGVIRNPGLGAPVVFHMTNYLEQPVSNDL SNC	90
PPRV	51	DARDPSTDPG IGHFLRVFEIGLVRDLGLGPPVVFHMTNYLTVNMSDDYRRC	100
MV	91	MVALGELKLAALCHGEDSITIPYQGV SFQ----LVKLG VWKSP TDMQSWV	136
PPRV	101	LLAVGELKLTALCTSSETVTL SERGVPKRKPLV VVILNL AGPTLGGELYS	150
MV	137	PLSTD DPVIDRLYLS SHRGVIADNQA KWA VPT TRTDDKLRMETCFQQACK	186
PPRV	151	VLPTSDLNVEKLYLSSHRI IKDDEANV VVPTDVRDLQNKGECLVEACK	200
MV	187	GKIQALCENPEWAPLKDNRIP SYGVL SVDL-STVELKIKIASGFGPLITH	235
PPRV	201	TRPPSFCNGTSGPWSEGRIPAYGVIRVSLNSASDPGVVITSVFGPLIPH	250
MV	236	GSGMDLYKSNHMNVYWLTI PPKNLALGVINTLEWIPRFKVSPYLFTVPI	285
PPRV	251	LSGMDLYNMPFSRAVWLVAVPPYE QSFLGMINTIGFPNRAEVMPHILTTEI	300
MV	286	KEAGEDCHAPTYL----DGDVKLSSMLVILPGQDLQYVLATYDTSRVE-A	330
PPRV	301	RGPRGRCHVPIEL SRRVDDDIKIGSNMVILPTMDLRYITATYDVSRREHA	350
MV	331	VVYYVYSPSRSFSYFYPPFLP IKGVPIELQVECFTWDQKLWCRHFCVLAD	380
PPRV	351	IVYYIYDTGLSSSYYPVRLNFKGNPLSLRIECFPWRHKVWCYHDCLIYN	400
MV	381	SESGGHITHSGMVG MGVSC---- 399	
PPRV	401	TITDEEVHTRGLTGIEVTCNPVX 423	

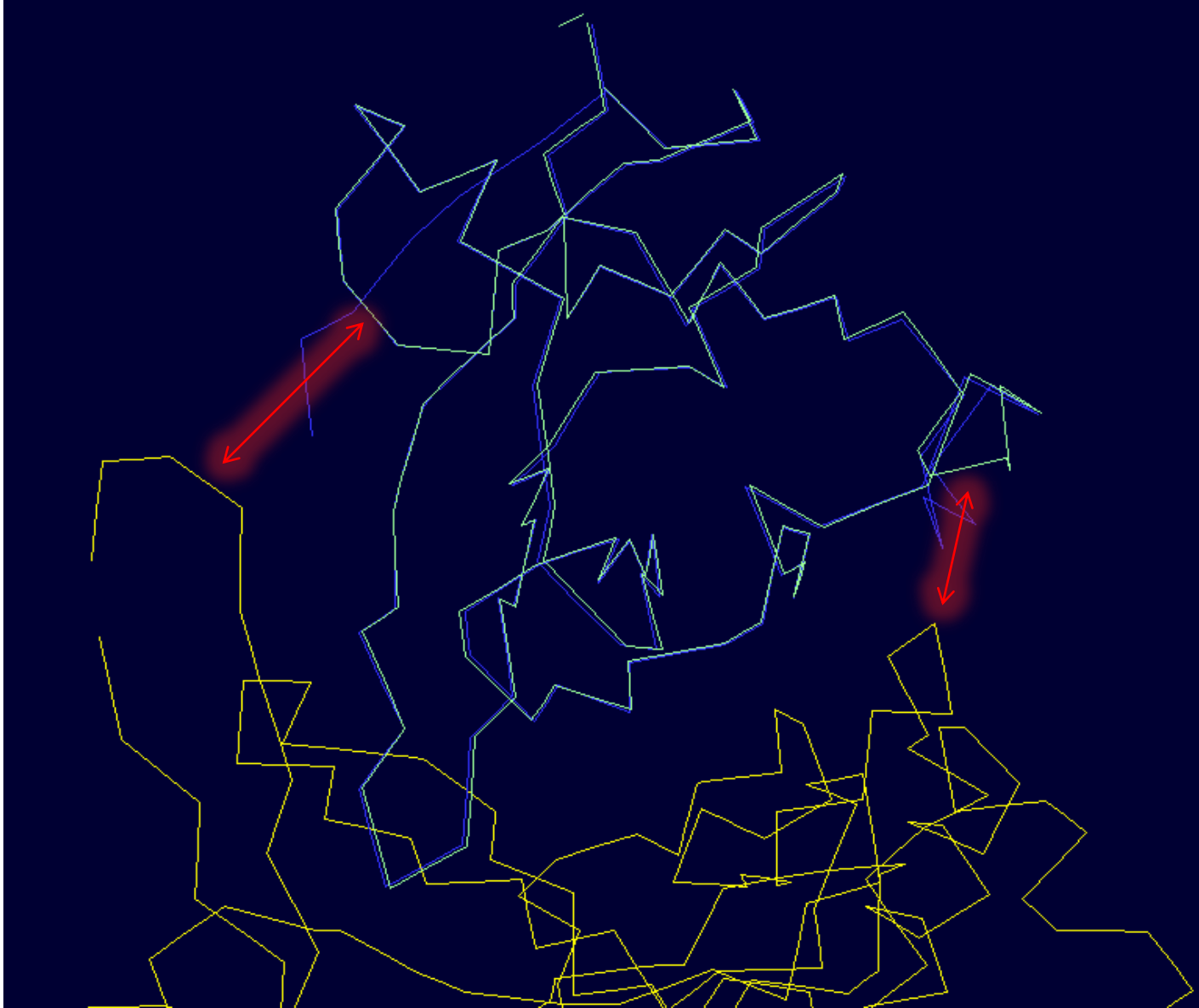
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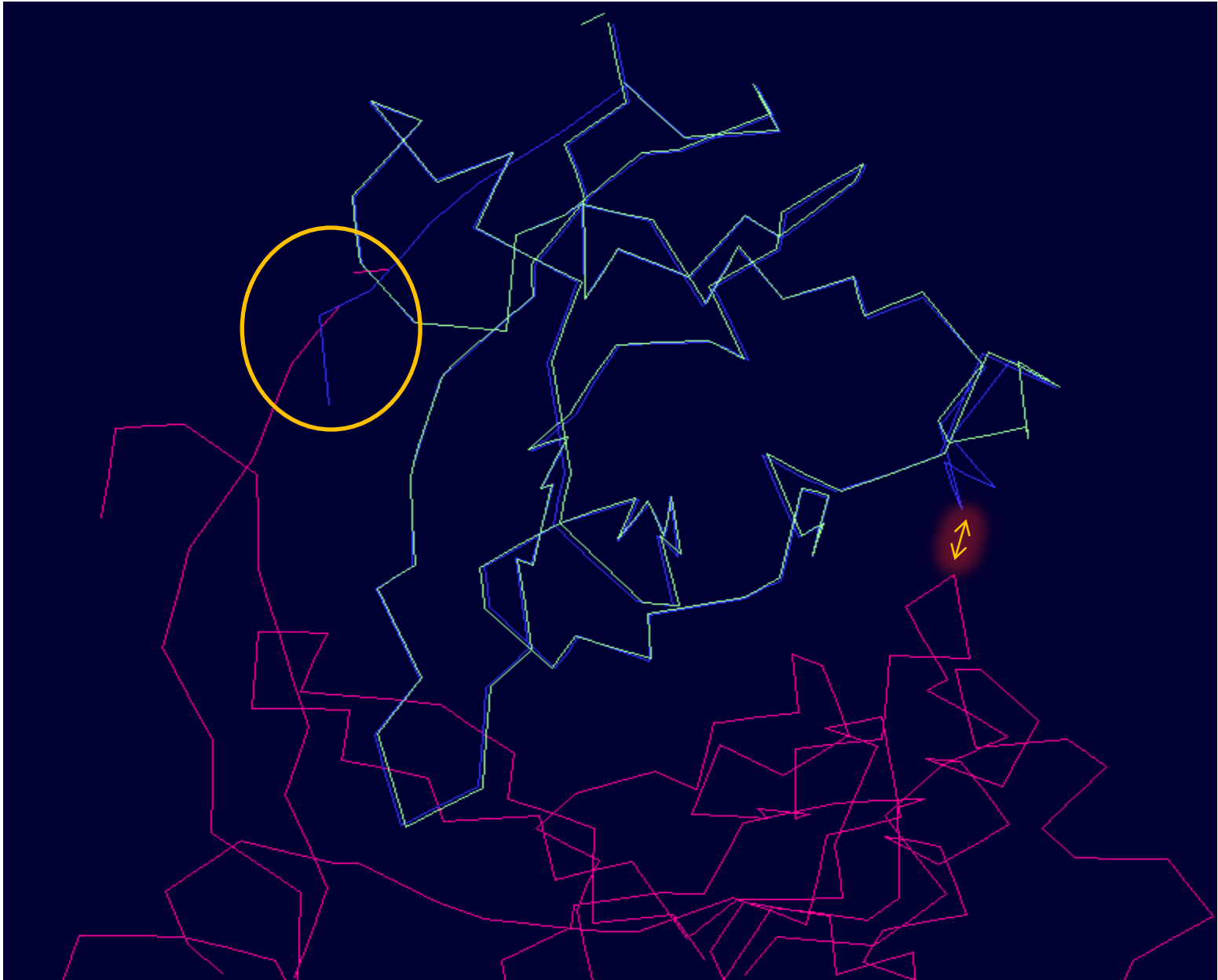
# 病毒嗜性？跨种间传播？



# 麻疹感染羊的几率？



# PPRV感染人的几率？



# 展望

- 蛋白质的各层次结构与功能分析
- 病毒跨种间传播风险评估、预警
- “堵锁孔”抗病毒药物的开发

# 致谢

- 衷心感谢罗老师的辛勤付出！
- 感谢同窗学习的战友！
- 感谢班长及各位组长的努力！

谢谢大家！  
请批评指正！