

### 3.5 Comparison of Nucleocapsid (N) Proteins of NCoV and MERS CoV

MSDNGPQNQRNAPRITFGGSPDSTGSNQNGERSGARSKQRRPQG  
 LPNNTASWFTALTQH GKEDLKFPRGGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK  
 DLSRWYFYFLGTGPEAGLPYGANKDGIHWVATEGALNTPKDHIGTRNPANNAIVLQ  
 LPQGTTLPKGFYAEGRGGSQASSRSSRSRNSRSTPSSRGTSPARMAGNGGDA  
 LALLLLDRLNQLKESKMSGKGGQQQQGQTVTKKSAEASKKPRQKRTATKAYNVTQAFGR  
 RGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYT  
 GAIKLDKDPNFKDQVILLNKHIDAYKTFPPTPEPKDKKKKADETQALPQRQKKQQT  
 VLLPAADLDDFSKQLQSSMSSADSTQA

select all 100 sequences selected		GenPept	Graphics	Distance tree of results	Multiple alignment		
	Description	Max Score	Total Score	Query Cover	E value	Per Ident	Accession
<input checked="" type="checkbox"/>	nucleocapsid_orthocoronavirus [Betacoronavirus/2019-nCoV]	299	299	88%	2e-96	49.36%	AHY91344.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	288	288	88%	3e-94	50.26%	AWH65850.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	287	287	91%	7e-94	48.99%	AHY22561.1
<input checked="" type="checkbox"/>	N [Middle East respiratory syndrome-related coronavirus] [Middle East respiratory syndrome-related coronavirus]	287	287	91%	7e-94	48.99%	AHL19098.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	287	287	91%	7e-94	48.99%	AHY22571.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	287	287	88%	8e-94	50.26%	AWH65961.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	286	286	91%	8e-94	48.24%	ANF26235.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	284	284	82%	2e-92	50.97%	AW62533.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	281	281	88%	2e-91	48.97%	AV652544.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	278	278	91%	1e-90	48.74%	ATQ84774.1
<input checked="" type="checkbox"/>	nucleocapsid protein [Middle East respiratory syndrome-related coronavirus]	278	278	91%	2e-90	48.74%	ASJ26617.1
<input checked="" type="checkbox"/>	nucleocapsid protein [Middle East respiratory syndrome-related coronavirus]	278	278	91%	3e-90	48.49%	ALA49865.1
<input checked="" type="checkbox"/>	nucleoprotein [Middle East respiratory syndrome-related coronavirus]	278	278	91%	3e-90	48.49%	AGZ41350.1
<input checked="" type="checkbox"/>	nucleoprotein [Middle East respiratory syndrome-related coronavirus]	278	278	91%	3e-90	48.74%	ASU99457.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	277	277	91%	3e-90	48.29%	QBF80572.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	277	277	91%	3e-90	48.49%	AW82676.1
<input checked="" type="checkbox"/>	nucleocapsid [Middle East respiratory syndrome-related coronavirus]	277	277	91%	4e-90	48.49%	AHX00716.1
<input checked="" type="checkbox"/>	nucleocapsid_orthocoronavirus [Middle East respiratory syndrome-related coronavirus]	277	277	91%	4e-90	48.49%	AMC03469.1
<input checked="" type="checkbox"/>	nucleoprotein [Middle East respiratory syndrome-related coronavirus]	277	277	84%	4e-90	51.09%	ASU99402.1
<input checked="" type="checkbox"/>	N protein [Middle East respiratory syndrome-related coronavirus]	277	277	91%	4e-90	48.49%	AVN89320.1
<input checked="" type="checkbox"/>	nucleoprotein [Middle East respiratory syndrome-related coronavirus]	277	277	84%	5e-90	51.09%	ASU99380.1

**Fig. 3.6** Comparison of the N Protein with MERS CoV proteome using BLAST

**Inference:** The above result shows that MERS CoV Nucleocapsid shares 50.26% identity to the N protein query with coverage of 88% (Fig. 3.6).