CBG.01 - Replication, tra	nscription and translation -	Prokaryotes and Eukaryotes	- 8/2/2019 -	Dr. Colin D
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	•	'Small' (diffusion limited) – 1	•	Much more complex	•	No advanced		
		μm size. They're so small in	ĺ	cytoskeleton		cytoskeleton, just		
4		fact that they don't really have	•	cytoplasm contains many fibril-		like bacteria.		
poi		motor proteins in their	ĺ	forming proteins (tubulin, actin,				
sui		cytoskeletons to move stuff		lamin, keratin, etc.). Motor				
tra		around, they rely mostly on		proteins (kinesin, dynein,				
cell		internal diffusion.		myosin, <i>etc.</i> ) move along these.				
al c				These motor proteins drag				
rna			ĺ	cellular components such as				
nte			ĺ	vesicles, organelles and mRNA				
i bi			ĺ	around.				
ı ar			•	For example, a cilia has 9 pairs				
tor			ĺ	of tubulin filaments in a circle,				
ele				with another pair at the center.				
ysc			•	Consequently, molecules can				
yte				get from one end of the cell to				
				another by hitching a ride on				
				this system, so does not need		.\		
				diffusion.		un		
	•	They rely on their cytoplasmic	•	Energy production ecores al	•	They rely on their		
		membranes to get energy;	ĺ	over cytoplash wherever		cytoplasmic		
		Larger size means more		mit shoud ia/plastics are,		membranes to get		
		Demand for Energy/ATP, but	Π	herefore S.A. is not the energy		energy; Larger		
u		lower S.A:V ratio, s		source and herefore reduced		size means more		
ctic		proportionally rouced energy	d	A: V ratio from large size does		Demand for		
stri		supply. This restricts size	3	not limit cell energy supply.		Energy/ATP, but		
res	•	About 1 µm size <i>on average</i> –	•	Eukaryotic cells can therefore		lower S.A:V		
ize		<i>E.fishelonsi</i> (~500µm) and	ĺ	grow much larger than those of		ratio, so		
S		<i>T.Namibiensis</i> (~ 750 μm) are		prokaryotes		proportionally		
		exceptions.	•	About 100 µm size – much		reduced energy		
	•	Some mitigate this using		larger than the average		supply. This		
		membranal folds that increase		prokaryote.		restricts size		
		S.A.						
	Phylogeny of everything							