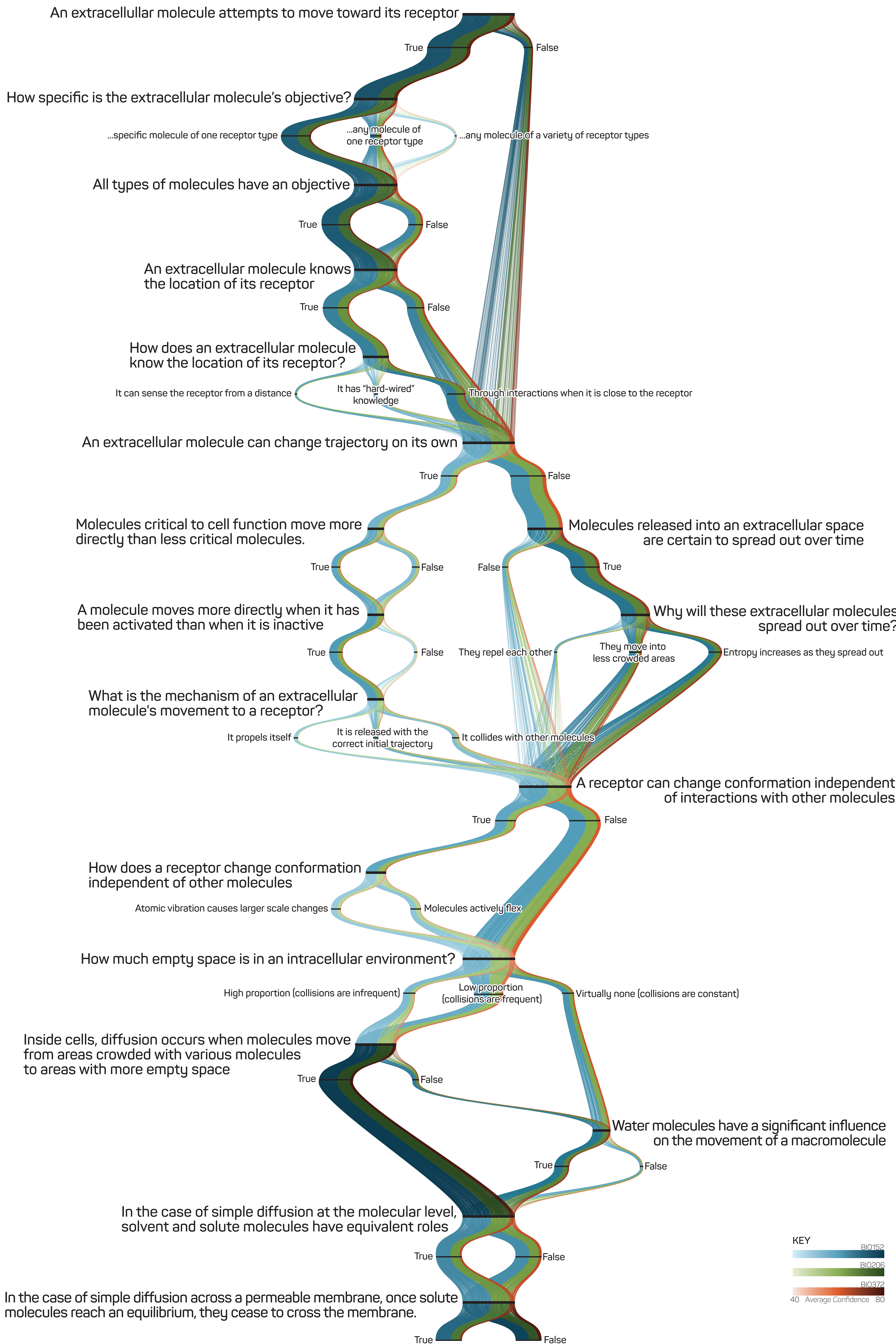


EXAMINING STUDENTS' UNDERSTANDING OF MOLECULAR INTERACTIONS USING AN ADAPTIVE ASSESSMENT TREE

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- This tree guides learners through a series of multiple-choice questions to assess their understanding of protein-protein interactions in relation to the surrounding cellular environment.
- Based on student responses, the program presents a tailored set of questions, determining the path that respondents take through the tree.
- Students (n = 776) majoring in undergraduate biology participated in this assessment
- Our findings will help to inform the design of visualizations that are more specifically targeted at challenging students' beliefs about molecular scale phenomena.



Descriptives

		N	Mean	Std. Deviation	Std. Error
SciLit Total	BI0152	424	8.67	1.290	.063
	BI0206	277	9.05	1.100	.066
	BI0372	72	9.17	1.007	.119
	Total	773	8.85	1.217	.044
SciLit Average Confidence	BI0152	424	82.627	11.8086	.5735
	BI0206	277	84.631	12.4423	.7476
	BI0372	72	88.803	10.2808	1.2116
	Total	773	83.920	12.0331	.4328
Total Misconceptions	BI0152	424	6.34	2.140	.104
	BI0206	277	8.15	2.355	.142
	BI0372	72	5.26	2.368	.279
	Total	773	6.17	2.255	.081
Mol Average Confidence	BI0152	424	61.3338	19.86682	.96482
	BI0206	277	68.4772	18.15040	1.09055
	BI0372	72	74.5229	15.90247	1.87412
	Total	773	65.1221	19.42836	.68879
Model	Fixed Effects		18.92685	68075	
	Random Effects		3.92841		

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
SciLit Total	Between Groups	32.520	2	16.260	11.280	.000
	Within Groups	1109.931	770	1.442		
	Total	1142.451	772			
SciLit Average Confidence	Between Groups	2565.884	2	1282.942	9.045	.000
	Within Groups	103216.281	770	141.839		
	Total	111782.165	772			
Total Misconceptions	Between Groups	72.079	2	36.039	7.176	.001
	Within Groups	3867.344	770	5.023		
	Total	3939.423	772			
Mol Average Confidence	Between Groups	15586.169	2	7783.084	21.727	.000
	Within Groups	275833.844	770	358.226		
	Total	291400.013	772			

