

Scallions treated as in *AP Biology laboratory manual*. (from E. Cowles)

Groups: control (water), lectin (5 mg/100 ml); 1, 5, 10, 100 mM caffeine in water.

Lectin (L-2646 from Sigma).

Scallion root tips grown for 48 hours in dark. Fixed and stored in 70% ethanol as in lab manual.

**Results** (observed at 400 x)

<b>Tip Treatment</b>	<b>Number of Cells</b>				
	<b>Interphase</b>	<b>Prophase</b>	<b>Metaphase</b>	<b>Anaphase/Telophase</b>	<b>Total</b>
Control	460	43	8	24	535
Lectin	417	117	51	41	626
1 mM caffeine	549	18	3	5	575
5 mM caffeine	449	11	2	7	469
10 mM caffeine	330	9	3	0	342
100 mM caffeine	Cytotoxic ----->				

Nuclei appeared “blebby” with caffeine treatments, noted cells with vesicles.

Alternative dye: 1 % toluidine blue in water

Alternative treatment of tips

Heated in 1 M HCl at 60°C for 5 minutes  
Rinsed with water, water removed with Kimwipe  
Stained  
Blotted up excess stain with Kimwipe  
Added 1 drop of water  
Used needles to gentle tease apart root  
Squashed tip