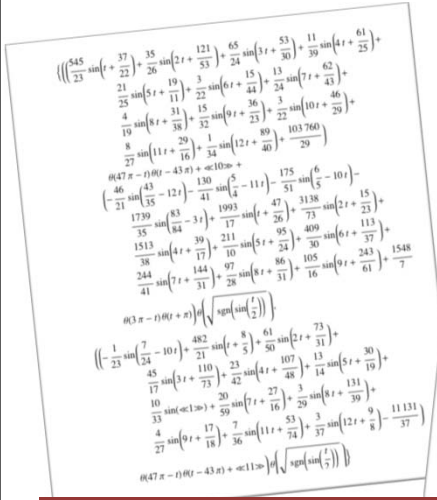






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```
var d = new Date();
var x = d.toString();
document.getElementById('displayFull').innerHTML = x;

//This just shows the day number//
function getDayNumber() {
    var d = new Date();
    var n = d.getDate();
    document.getElementById('displayDayNumber').innerHTML = n;

    //This shows the name of the day//
    function getWeekDayName() {
        var x = new Date();
        var y = x.getDay();
        if (y == 0) {
            document.getElementById('displayDayName').innerHTML = 'Sunday';
        }
        else if (y == 1) {
            document.getElementById('displayDayName').innerHTML = 'Monday';
        }
        else if (y == 2) {
            document.getElementById('displayDayName').innerHTML = 'Tuesday';
        }
        else if (y == 3) {
            document.getElementById('displayDayName').innerHTML = 'Wednesday';
        }
        else if (y == 4) {
            document.getElementById('displayDayName').innerHTML = 'Thursday';
        }
        else if (y == 5) {
            document.getElementById('displayDayName').innerHTML = 'Friday';
        }
        else {
            document.getElementById('displayDayName').innerHTML = 'Saturday';
        }
    }
}
```

## Knowledge Pathway

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### Determining the Effect of Parkinson's Disease LRRK2 Mutations on Synaptic Vesicle Recovery

<p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>• Parkinson Disease             <ul style="list-style-type: none"> <li>- affects over 1 million individuals in the United States</li> <li>- Etiology of the disease is unclear</li> <li>- associated with dopaminergic neuronal death and a loss of dopamine in the striatum <b>SN</b> region of brain</li> </ul> </li> <li>• LRRK2             <ul style="list-style-type: none"> <li>- Increases in genome associated with Parkinson Disease</li> <li>- G2019S mutation</li> <li>- 2 functional domains, 2 membrane (in cytosol and outer domain)</li> </ul> </li> <li>• <b>Exhibits</b> At (Parkin)             <ul style="list-style-type: none"> <li>- Regulated by LRRK2</li> <li>- localized in nuclei</li> </ul> </li> </ul> <p><b>Hypothesis</b></p> <p>Overexpression of Parkin to assess LRRK2 effect on the contribution of Parkin to such a way that addition of synaptic vesicle reformation is inhibited.</p> <p><b>Methodology</b></p> <ul style="list-style-type: none"> <li>• EGFP <b>Parkin</b>: Same genes</li> <li>• Expression and Purification of EGFP <b>Parkin</b>: Same</li> <li>• <b>Exhibits</b> At (Parkin)             <ul style="list-style-type: none"> <li>- EGFP and uninduced and treated</li> <li>- affect release rate to post-</li> </ul> </li> <li>• <b>Postnatal</b> onset             <ul style="list-style-type: none"> <li>- Postnatal: measurement of self-recovery using changes in release patterns</li> <li>- Fluorescence correlation spectroscopy (FCS) - measure single vesicles of Parkin-EGFP</li> </ul> </li> <li>• <b>Timeline</b> <ul style="list-style-type: none"> <li>- timeline changes in light vesicle using Parkin-EGFP labeling</li> <li>- Use Channel 5 software</li> <li>- Fix brain (Immunogold to make accurate) - Immunogold pattern used to compare to identify to work with us</li> </ul> </li> </ul>	<p><b>Results</b></p> <p><b>Expression and Purification of Parkin-EGFP</b></p> <p><b>Characterization of Transgenic Parkin-EGFP Synaptic Activity</b></p> <p><b>Analysis of Parkin-EGFP Labeling, Self-recovery and Fluorescence</b></p> <p><b>Discussion</b></p> <ul style="list-style-type: none"> <li>• We successfully acquired and purified active Parkin-EGFP from Drosophila</li> <li>• Confirmed protein identity by sequencing</li> <li>• We successfully reconstituted the Parkin-EGFP into lipid vesicles in a biochemically active form as a fusion of a domain and fused Drosophila</li> <li>• We successfully demonstrated that transgenic labeled light vesicles (FCS) could be used to measure Parkin-EGFP vesicle self-recovery</li> <li>• Fluorescence correlation spectroscopy (FCS) - measure single vesicles</li> <li>• Immunogold labeling used to compare to identify to work with us</li> <li>• Timeline changes in light vesicle using Parkin-EGFP labeling</li> <li>• Use Channel 5 software</li> <li>• Fix brain (Immunogold to make accurate) - Immunogold pattern used to compare to identify to work with us</li> </ul> <p><b>References</b></p>
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Scientific Research

## International Science & Engineering Fair

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