Examine the Effect of WDR5B on Cell Adhesion in Cancer Metastasis

Van Hsieh, Biology Major, UCSB
Professor Zach Ma (MCDB)
Cancer Research Coordination Committee
Cell Adhesion Plays an Important Role in Cancer Metastasis

Metastasis is the spread of cancer from one organ to another organ that is not directly touching it.
Dysfunction in cell adhesion allows cancer cells to escape the primary tumor.
Escaped cancer cells travel through circulatory system causing cancer to metastasize.
To Determine What Effects WDR5B has on Cell Adhesion

Knockdown WDR5B  ?  Change in Cell Morphology
To Determine What Effects WDR5B has on Cell Adhesion

Transfect Cells with WDR5B SiRNA

Change in Cell Morphology
To Determine What Effects WDR5B has on Cell Adhesion

To determine the mechanism that WDR5B affects cell adhesion, mRNA and SiRNA were used to determine if the protein is expressed. The experiment aimed to change cell morphology.
Goal: Determine the Mechanism that WDR5B affects cell adhesion?

To Determine What Effects WDR5B has on Cell Adhesion

WDR5B level → Change in Cell Morphology
To Determine What Effects WDR5B has on Cell Adhesion
To Determine What Effects WDR5B has on Cell Adhesion
To Determine What Effects WDR5B has on Cell Adhesion

Cell-Cell Adhesion
To Determine What Effects WDR5B has on Cell Adhesion
To Determine What Effects WDR5B has on Cell Adhesion
Goal: Determine the Mechanism that WDR5B affect cell adhesion
To Determine What Effects WDR5B has on Cell Adhesion
To Determine What Effects WDR5B has on Cell Adhesion

- WDR5B level
- Transcription? Trafficking? Signaling?
- Integrin
- Cadherin
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE

2) Transfer

3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE

2) Transfer

3) Develop image

Sodium Dodecyl Sulfate- Polyacrylamide

Gel Electrophoresis (SDS-PAGE)
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE

2) Transfer

3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE

2) Transfer

3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image
Test out Change in Protein Level with Western Blot

3 main steps in Western Blot:

1) SDS-PAGE
2) Transfer
3) Develop image

Quantify with computer program
Preliminary Data: Decrease in Integrin and Mature Integrin Level

Test out Change in Integrin and Cadherin with Western Blot

Probe with integrin antibody
Preliminary Data: Decrease in Integrin and Mature Integrin Level

Probe with integrin antibody
Preliminary Data: Decrease in Cadherin Level

Probe with cadherin antibody
Preliminary Data: Decrease in Cadherin Level

<table>
<thead>
<tr>
<th></th>
<th>B14</th>
<th>B13</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-CAD</td>
<td>15.52</td>
<td>6.26</td>
<td>34.81</td>
</tr>
</tbody>
</table>

170
Preliminary Data: Decrease in Cadherin Level

<table>
<thead>
<tr>
<th></th>
<th>B14</th>
<th>B13</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>15.52</td>
<td>6.26</td>
<td>34.81</td>
</tr>
</tbody>
</table>

E-CAD
Conclusion and Future Direction

Further investigate cadherin

Further investigate downstream pathway protein for integrin
Acknowledgement