

CERTIFICATE OF MATERIAL ORIGIN

Date: 10/27/2017 Revision: 02

Product: CDH3, Human, Solution

| Supplier | Advanced BioMatrix, Inc. |
|-------------------------------------|---|
| Supplier Catalog No. | 5124 |
| Supplier Location | California, USA |
| Name/Grade | CDH3, Human, Solution, 0.5 mg/ml |
| Animal Origin (including human) | |
| -Animal Species | Not applicable |
| -Tissue Origin | Not applicable |
| -County of Origin | Not applicable |
| Non-animal Source of Origin | |
| -Country of Origin | United States |
| Animal Origin Material Adventitious | Not applicable |
| Agent Risk Reduction Steps | |
| Method of Manufacturing | Recombinant and protein expression |
| Briefly describe Method of | Full-length extracellular domain of human CDH3 gene |
| Manufacturing | (108 – 645 aa) was constructed with 29 N-terminal T7/His |
| | tag and expressed in E. coli as inclusion bodies. The final |
| | product was refolded using a unique "temperature shift |
| | inclusion body refolding" technology and |
| | chromatographically purified. |

The above information has been completed by an authorized representative of management and is complete and correct to my knowledge.

I Dagley

Corporate Headquarters P.O. Box 502403 San Diego, CA 92150-2403 President

October 27, 2017

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