

## HER2 MONOCLONAL ANTIBODIES, ANTIBODY DRUG CONJUGATES, AND SITE SPECIFIC ANTIBODY CONJUGATE METHODS

### SUMMARY

The National Cancer Institute's Laboratory of Experimental Immunology seeks partners interested in licensing or collaborative research to co-develop monoclonal antibodies and ADCs, and methods of making them.

### REFERENCE NUMBER

E-351-2013

### PRODUCT TYPE

- Therapeutics

### KEYWORDS

- Her2 positive
- Her2-overexpression
- Her2
- antibody drug conjugate
- ADC

### COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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### DESCRIPTION OF TECHNOLOGY

Antibody drug conjugates (ADC) can demonstrate high efficacy as cancer therapeutics, however, much more can be done to improve their efficacy and safety profile. Site-specific antibody drug conjugation is a promising way to do this. Scientists at the NCI's [Laboratory of Experimental Immunology](#) have identified a fully human monoclonal antibody, m860, that binds to cell surface-associated Her2 with affinity comparable to that of Trastuzumab (Herceptin) but to a different epitope. In addition, the scientist developed a site-specific glycan engineering method to conjugate the antibody to the small molecule drug auristatin F. The ADC prepared through this site-specific approach shows very good stability, cell surface binding activity and also potent specific cell killing activity against Her2 positive cancer cells,

including Trastuzumab resistant breast cancer cells. This ADC has the potential to be developed as a targeted therapeutic for Her2-overexpressing cancers and this site-specific strategy could be readily applied to develop ADCs targeting other cancers that express cell surface markers or other disease targets.

### **POTENTIAL COMMERCIAL APPLICATIONS**

- Therapeutic for the treatment of Her2 positive cancers.
- Method for producing safer and more effective ADCs.

### **COMPETITIVE ADVANTAGES**

- Could be used in combination with Trastuzumab or for patients who have developed resistance to Trastuzumab treatment, since this antibody targets a different epitope.
- Site specific conjugation provides better efficacy and less side effects than ADCs produced using traditional strategies.
- Can be readily applied to develop ADCs targeting other cancers that express cell surface markers or other disease targets, such as HIV.

### **INVENTOR(S)**

- [Dimiter S. Dimitrov](#) (NCI), Zhu Zhongyu (NCI), Pradman K. Qasba (NCI), Boopathy Ramakrishnan (NCI)

### **DEVELOPMENT STAGE**

- Pre-clinical (in vivo)

### **PATENT STATUS**

- **U.S. Filed:** PCT Patent Application No. PCT/US2014/041492 filed June 9, 2014

### **THERAPEUTIC AREA**

- Cancer/Neoplasm