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Biotechnology bingo modularity, knowledge processes, and the collaborative experience

Desiree A. Monty
University of Wollongong

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**Biotechnology Bingo
Modularity, Knowledge Processes, and the
Collaborative Experience**

***A thesis submitted in fulfillment of the requirements for the award of the
degree**

Doctor of Philosophy

From

University of Wollongong

By

**Desiree A. Monty
BSBA/ACC
MBA**

**School of Management, Marketing, and Employment Relations
2004**

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Thank you all!!!!

CERTIFICATION

I, Desiree A. Monty, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the Department of Management, Marketing, and Employment Relations, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Desiree M. Monty

18 February 2004

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ABSTRACT

This thesis examines collaborative relationships between university scientists and private biotechnology firms. Using the concepts of *modularity*, *boundary objects*, and *articulation*, I demonstrate that these relationships are structured in a modular fashion. How knowledge is used, reused, and valued in an alliance is dependent upon the structure of that alliance. Knowledge is seen to exist in two forms – *migratory*, being mobile and combinable, and *ingrained*, being personally idiosyncratic and intertwined with specialization. In examining these forms of knowledge and the way that they are used by members of a collaboration, I use an interpretive methodology to analyze the data derived from four case studies of university-industry collaboration. One case study is based on an alliance in the United States and the other three cases present evidence from collaborations in Australia. I explore the appropriateness of applying the concepts of modular design to interorganizational collaborations, the production and use of knowledge within the boundaries of these structural arrangements, and the role of the university and firm scientists in the endeavour to develop therapeutics through the application of biotechnology. I argue that the movement of knowledge is dependent upon the structure through which knowledge processes are operationalized. In addition, I submit that knowledge based collaborations in biotechnology must be analyzed with respect to the larger contextual framework of the biopharmaceutical industry, with consideration of both the competitors of an alliance and the ill patients who stand to benefit from the work within an alliance.