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Seema Nanda*, 6188 Kemeny Hall, Dept. of Mathematics, Dartmouth College, Hanover, NH 03755, **L G DePillis**, Claremont, CA , and **Ami Radunskaya**, Claremont, CA. *B-CLL progression considering immune response.*

We propose a model for B cell Chronic Lymphocytic Leukemia (B-CLL) which captures the clinical heterogeneity the disease is known to have. We study disease progression across different patients via a unified yet flexible approach, using a mathematical model of B-CLL with immune response, that can exhibit both rapid and slow disease progression. We present analysis of existing data in the medical literature, determine ranges of values for parameters of the model, and compare our model outcomes to clinical patient data. This work provides a tool that could shed light on factors affecting the course of disease progression in patients. (Received September 20, 2016)