

Haematologica  
HAEMATOL/2018/190132  
Version 3

Trisomy 12 chronic lymphocytic leukemia expresses a unique set of  
activated and targetable pathways

Lynne V. Abruzzo, Carmen D. Herling, George A. Calin, Christopher  
Oakes, Lynn L. Barron, Haley E. Banks, Vikram Katju, Michael J.  
Keating, and Kevin R. Coombes

Disclosures: This work was supported in part by grants from the CLL Global Research  
Foundation and NIH/NCI 1 R01 CA182905-01.

Contributions: L.V.A., C.D.H., M.J.K, and K.R.C. contributed to the conception and design  
of the manuscript; M.J.K. provided patient samples; C.D.H., L.L.B., and H.E.B. performed  
the experiments; V.K. and K.R.C. performed the data analysis; all authors contributed to  
collection, assembly, and interpretation of the data. All authors contributed to review and  
revisions to manuscript content and final approval of manuscript.