Monoclonal Macroglobulins with Antibody Activity. Marvin Stone, Yolonda McElroy, Alan Pestronk, Alex Tong. Baylor Sammons Cancer Center, Dallas, TX and Dept. of Neurology, Washington University School of Medicine, St. Louis, MO, USA.

In order to identify specific antigen-binding activity, we performed assays on sera from 172 patients with monoclonal macroglobulinemia as defined by immunofixation electrophoresis. These sera were collected between 1970 and 2002. Samples were analyzed for cryoglobulin (CRYO), rheumatoid factor (RF), cold agglutinin (CA), anti-nuclear antibody (ANA), anti-DNA antibody, and neural antigen reactivity. Mean serum IgM level was 1409 ± 110 mg/dL (mean ± SEM; n=171) with a range from 70 to 6,800 mg/dL. 15.3 % (26/170) of sera exhibited cryoglobulin activity (12 trace, 5 single component, 9 mixed IgM-IgG). RF activity was detected in 12.6 % (19/151) of samples tested (titer range 1:80 to 1:327,680). 8.6 % (10/117) of samples showed positive cold agglutinin reactions (anti-I titer 1:512 to 1:65,536). ANA was detected in 10.7 % (18/169, titer 1:40 to 1:10,240), whereas anti-DNA activity was not detected in any sample tested (n=167). Among the 26 CRYO-positive samples, RF activity was identified in 10. Among the 9 mixed IgM-IgG cryos, 8 were RF-positive. 3 of the 20 RF+ sera also demonstrated ANA activity. 9 of 172 sera had clearcut (7) or probable (2) biclonal features, 2 of which had ANA activity and 1 RF activity. Myelin-associated glycoprotein antibody activity was detected in 4.3% (6/138) of samples. Other known antigens that displayed reactivity included tubulin, sulfatide, and GD1b ganglioside (1 each). The findings indicate that 31 % of patients with monoclonal macroglobulinemia in this series exhibited mixed cryoglobulinemia, RF, CA, ANA or neural antigen activity. Some of these antibody-autoantigen complexes resulted in clinically significant manifestations. Characterization of antigen-binding activities may provide insight into the pathogenesis of monoclonal gammopathies.