Validation of a *Drosophila* model of wild-type and T315I mutated BCR-ABL1 in chronic myeloid leukemia: an effective platform for treatment screening

Amani Al Outa,[1] Dana Abubaker,[2] Ali Bazarbachi,[1,3] Marwan El Sabban,[1] Margret Shirinian[2] and Rihab Nasr[1]

[1]Department of Anatomy, Cell Biology and Physiology, Faculty of Medicine, American University of Beirut; [2]Department of Experimental Pathology, Immunology and Microbiology, Faculty of Medicine, American University of Beirut and [3]Department of Internal Medicine, Faculty of Medicine, American University of Beirut, Beirut, Lebanon

 doi:10.3324/haematol.2019.219394

Received: February 15, 2019.

Accepted: May 16, 2019.

Pre-published: May 17, 2019.

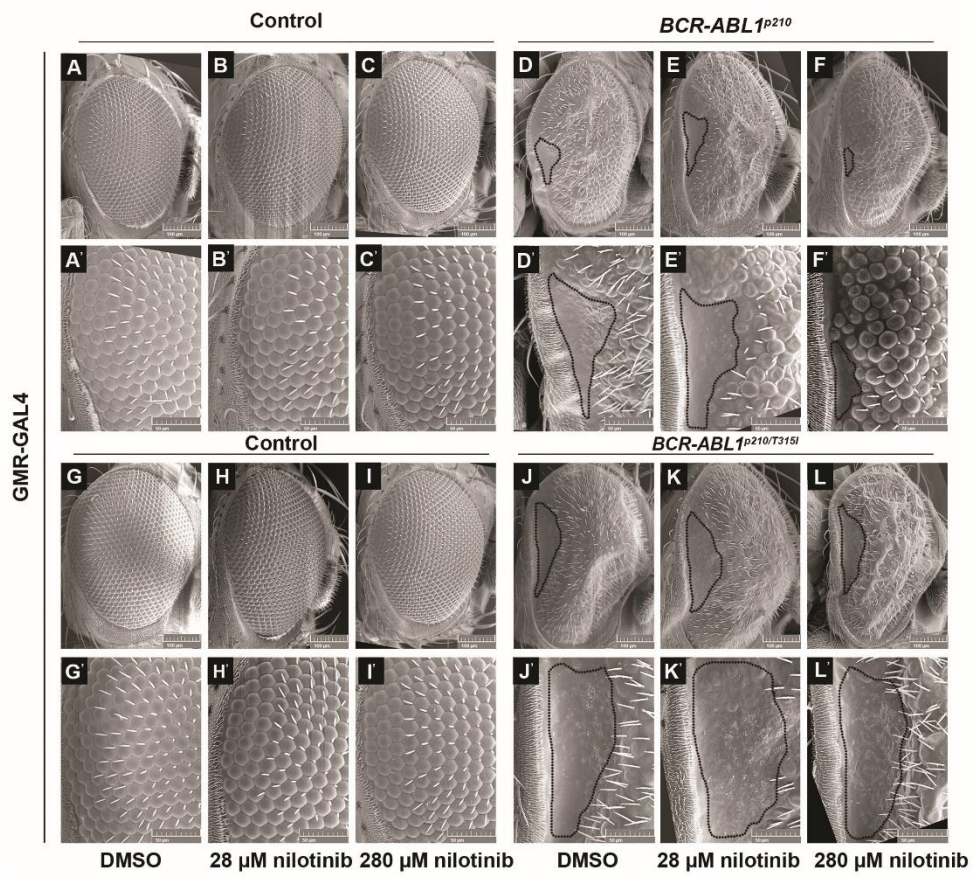
Correspondence: *MARGRET SHIRINIAN* - ms241@aub.edu.lb

RIHAB NASR - rn03@aub.edu.lb

Supplemental data:

Supplementary figures:

Figure S1:



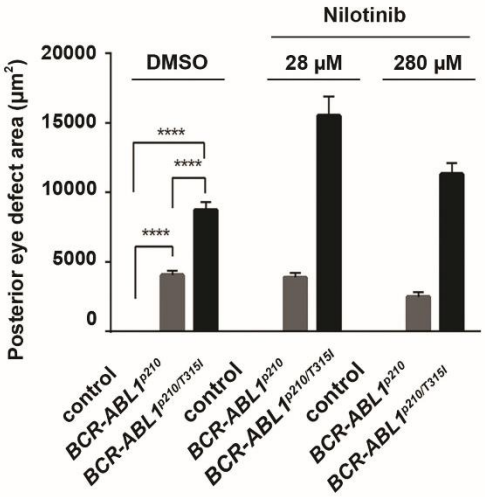


Figure S1. Nilotinib shows a tendency to decrease *BCR-ABL1^{p210}* mediated eye defect. Scanning electron micrographs (**A-A', L-L'**) of adult *Drosophila* compound eyes from flies fed on DMSO only (**A-A', D-D', G-G', J-J'**) or nilotinib (**B-B'-C-C', E-E'-F-F', H-H'-I-I', K-K'-L-L'**).Posterior is to the left. GMR-GAL4>*w^{1118}* were used as control. **A'-L'** are high magnification of the posterior end of the eye in **A-L** respectively (692 x). Normal development in control flies fed on DMSO (**A, A'-G, G'**) or nilotinib (**B-B'-C-C', H-H'-I- I'**) is observed. *BCR-ABL1^{p210}* (**D-D'**) and *BCR-ABL1$^{p210/T315I}$* (**J-J'**) expressing flies fed on DMSO show characteristic defective area with loss of ommatidial facets. Area is marked with a representative dashed line. Feeding low or high dose nilotinib to *BCR-ABL1^{p210}* (**E-E'-F-F'**) and *BCR-ABL1$^{p210/T315I}$* (**K-K'-L-L'**) retained the defective area in the posterior end of the eye marked with a dashed line. Compare to **D-D'** and **J-J'** respectively. Lower panel represents measurement of the posterior eye defect area (μm^2). Data represents mean ± SEM. ****, *P < 0.0001*.

Table S1

Score	Criteria
0	Regular ommatidial facets and bristle organization
1	-Scattered areas of non-polarized bristle alignments -And **less than 4** scattered areas displaying fusions of ommatidial facets
2	-Scattered areas of non-polarized bristle alignments -And **10-20** fusions of ommatidial facets that are scattered or in the same area -with/without duplicated bristles -with/without few lens defects manifested as holes in the ommatidial facets
3	-Scattered areas of non-polarized bristle alignments - And **20-40** fusions of ommatidial facets that are scattered or in the same area - with/without duplicated bristles - with/without few lens defects manifested as holes in the ommatidial

	facets
4	**One large surface area** of non-polar bristle alignments and fusions of ommatidial facets of the same large area - with/without duplicated bristles -with/without few lens defects manifested as holes in the ommatidial facets
5	-Multiple non-polar bristle alignments -And one large surface area of fusions of ommatidial facets and/or duplicated bristles -with/without few lens defects manifested as holes in the ommatidial facets
6	-Multiple non-polar bristle alignments -And scattered areas of incompletely developed ommatidial facets and/or duplicated bristles -with/without lens defects manifested as holes -with/without a characteristic groove of lost ommatidial facets on the lower end of the eye
7	-Multiple non-polar bristle alignments -And one large surface area of incompletely developed ommatidial facets and/or duplicated bristles -With/without lens defects manifested as holes in the residual ommatidial facets - With/ without a characteristic groove of lost ommatidial facets on the lower end of the eye
8	-Multiple non-polar bristle alignments -And/or duplicated bristles -with total loss of ommatidial facets -And with/without 1 area of missing bristles
9	-Multiple non-polar bristle alignments -And/or duplicated bristles - With total loss of ommatidial facets -With more than 1 area of missing bristles
10	Few dispersed bristles across the eye with total loss of ommatidial facets

Table 1. Grading score for quantification of eye roughness.