## Supplementary Movie 1.

Motility of taxolstabilized rhodamine-labeled microtubules in the presence of immobilized His-cleaved GFP-tagged KIF18A (1-480).

## Supplementary Movie 2.

Motility of taxolstabilized rhodamine-labeled microtubules in the presence of immobilized His-cleaved GFP-tagged KIF18A (1-480) and 25 nM VLS1272.

## Supplementary Data 1:

Area under the curve (AUC) calculated from VLS-1272 dose-response curves Cell lines were treated with increasing doses of VLS-1272 and proliferation measured after 7 days by CellTiter-Glo. AUC values were computed from the resulting dose response curves.