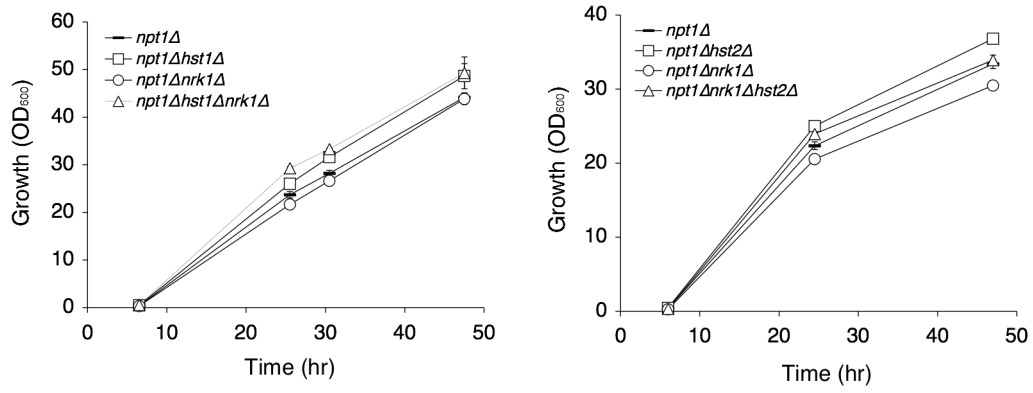
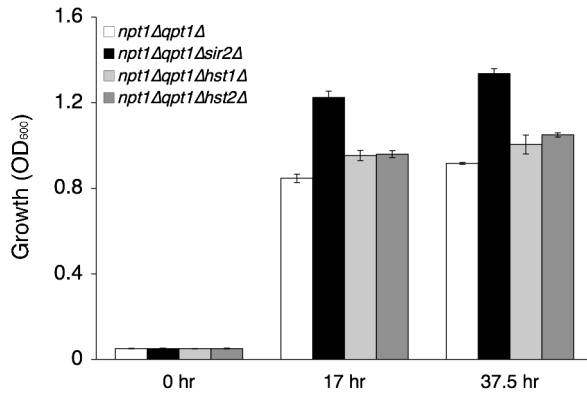


**A**



**B**



## Supplemental Figure legends

**Supplemental Figure 1.** Determination of the concentration of NmR in the culture supernatant of the *nrk1Δurh1Δpnp1Δ* mutant. A standard curve is established by supplementing a series of 8 mL culture of the *npt1Δqpt1Δ* mutant (recipient cells, starting  $OD_{600}=0.05$ ) with 50  $\mu$ L of 5  $\mu$ M, 10  $\mu$ M, 15  $\mu$ M or 20  $\mu$ M of enzymatically synthesized NmR following by determining the growth ( $OD_{600}$ ) after 20 hr incubation at 30°C. The equation  $y = 0.1564x - 0.1512$  is then generated to formulate the relationship between NmR concentrations (x) and growth ( $OD_{600}$ ) of the recipient cells (y). The *npt1Δqpt1Δ* mutant is also treated with 50  $\mu$ L of supernatant from the overnight culture supernatant of the *nrk1Δurh1Δpnp1Δ* mutant ( $OD_{600} \sim 27$ ), which reaches final  $OD_{600}$  of  $0.903 \pm 0.052$  after 20 hr. The concentration of NmR in the culture supernatant of the *nrk1Δurh1Δpnp1Δ* mutant is therefore estimated to be 6.74  $\mu$ M ( $y = 0.903$ ) using the equation generated with the standard set. One set of representative data conducted in triplicate is shown. Error bars denote standard deviations.

**Supplemental Figure 2.** Comparisons of the efficiency of NmR and NaR to support the growth of the *npt1Δqpt1Δ* mutant. The *npt1Δqpt1Δ* mutant (recipient cells, starting  $OD_{600}=0.05$ ) is supplemented with indicated final concentrations of chemically synthesized NmR (left) or NaR (right). Growth of the recipient *npt1Δqpt1Δ* mutant is determined ( $OD_{600}$ ) after 20 hr incubation at 30°C. Results show the relationship between concentrations (the x axis) of NmR (left) or NaR (right) and growth ( $OD_{600}$ ) (the y axis) of the recipient cells. NmR appears to be a more efficient  $NAD^+$  precursor ( $y = 6.722x +$

0.0593) compared to NaR ( $y = 0.0696x + 0.1029$ ). One set of representative data conducted in triplicate is shown. Error bars denote standard deviations.

**Supplemental Figure 3.** Analysis of the role of other Sir2 family members, Hst1 and Hst2, in NmR salvage. (A) Deletions of *HST1* (left) or *HST2* (right) do not cause severe growth defect in the *npt1Δnrk1Δ* mutant grown in rich medium. (B) NmR supplement supports the growth of the *npt1Δqpt1Δ* recipient cells, which is further enhanced by deletion of *SIR2* but not by deletions of *HST1* or *HST2*. One set of representative data conducted in triplicate is shown. Error bars denote standard deviations. For (B), NmR is supplemented to the growth media at a final concentration of 0.1  $\mu$ M.