**Supplementary Information**

![Figure S1](image)

**Figure S1.** A schematic representing the hot-walled chemical vapor deposition (HWCVD) setup employed for the synthesis of BN decorated Zn$_3$P$_2$ nanowires.

**Conditions:** $T_1 = 300 \, ^\circ$C, $T_2 = 600 \, ^\circ$C, $T_3 = 460 \, ^\circ$C, $T_4 = 400 \, ^\circ$C
Figure S2. (a) Electron micrograph and (b) the corresponding energy dispersive spectrum of a Zn$_3$P$_2$ nanowire non-conformally decorated with BN. As observed in the spectrum, no boron or nitrogen was observed. However, the zinc and phosphorus components of the nanowires are clearly visible in the spectrum. The carbon signal is believed to be from the holey carbon coating of the TEM grids holding the nanowire samples.
Figure S3. (a) Scanning electron micrographs of (a) as-obtained ZnO nanowires, (b) as-obtained ZnO nanowires after treatment with pH 3 HCl solution, (c) BN decorated ZnO nanowires, and (d) BN decorated ZnO nanowires after pH 3 HCl solution treatment. From the micrographs, it is clear, beyond doubt, that BN decoration of ZnO nanowires imparted them stability against acid-assisted degradation. (e) Tauc plot of both pristine and BN decorated ZnO nanowires. The plot indicated that the decoration process did not majorly alter the $E_g$ of ZnO nanowires.
Figure S4. Scanning electron micrographs of (a) as-obtained Mg$_2$Si nanowires, (b) as-obtained Mg$_2$Si nanowires after acid treatment, (c) BN surface decorated Mg$_2$Si nanowires, and (d) BN
surface decorated Mg$_2$Si nanowires after acid treatment. It is very clear from the figure (b) and (d) that BN surface decoration imparted resistance against acid-assisted degradation to Mg$_2$Si nanowires. (e) Raman spectra of the nanowires indicating that the nanowires are indeed composed of Mg$_2$Si and that they retained the same composition after BN decoration and acid treatment.