Fig. 5. Schematic representation of the application of proband-based rules to identify genes whose expression correlates negatively with or is not temporally congruent with, expression of a proband. *(A)* Negative correlation. The correlation coefficient between the expression profiles of a proband gene (red) and a tested gene (blue) is less than 0. The *x* axis represents time and the *y* axis represents the expression level relative to a control. The red and blue lines designate the expression profiles of the proband and correlated gene, respectively. *(B)* Expression profiles that anticipate (green curve) or (blue curve) the profile of the proband. The calculation used the generalized correlation coefficient

$$C_{xy}(\tau) = \frac{N\sum X(t+\tau)Y(t) - (\sum X(t+\tau))(\sum Y(t))}{\sqrt{[(N\sum X(t)^2) - (\sum X(t))^2][(N\sum Y(t)^2) - (\sum Y(t))^2]}}$$

where τ is the time shift between the expression profiles [Bracewell, R. N. (1995) *Two-Dimensional Imaging* (Prentice–Hall, Englewood Cliffs, NJ].