$$p\left(\lambda_i \mid \mathbf{y}, \beta, w\right) \propto p\left(y_i, \lambda_i, \beta, w\right)$$

$$\propto p\left(y_i \mid X, \beta, w, \lambda_i\right) p\left(\lambda_i \mid X, \beta, w\right)$$

$$\propto p\left(y_i \mid X, \beta, w, \lambda_i\right) p\left(\lambda_i\right)$$

$$\propto \left(\lambda_i w\right)^{1/2} \lambda_i^{h/2-1} \exp\left(-\frac{h}{2}\lambda_i\right) \exp\left(-\frac{w\lambda_i}{2}\left(y_i - x_i^\top \beta\right)^2\right)$$

$$\propto \underbrace{\lambda_i^{h/2-1/2} \exp\left(-\left(\frac{w}{2}\left(y_i - x_i^\top \beta\right)^2 + \frac{h}{2}\right)\lambda_i\right)}_{\Gamma\left(\frac{h+1}{2}, \frac{w}{2}\left(y_i - x_i^\top \beta\right)^2 + \frac{h}{2}\right)}$$

$$y_i \mid X, \beta, w \sim \Gamma\left(\frac{h+1}{2}, \frac{w}{2}\left(y_i - x_i^\top \beta\right)^2 + \frac{h}{2}\right)$$