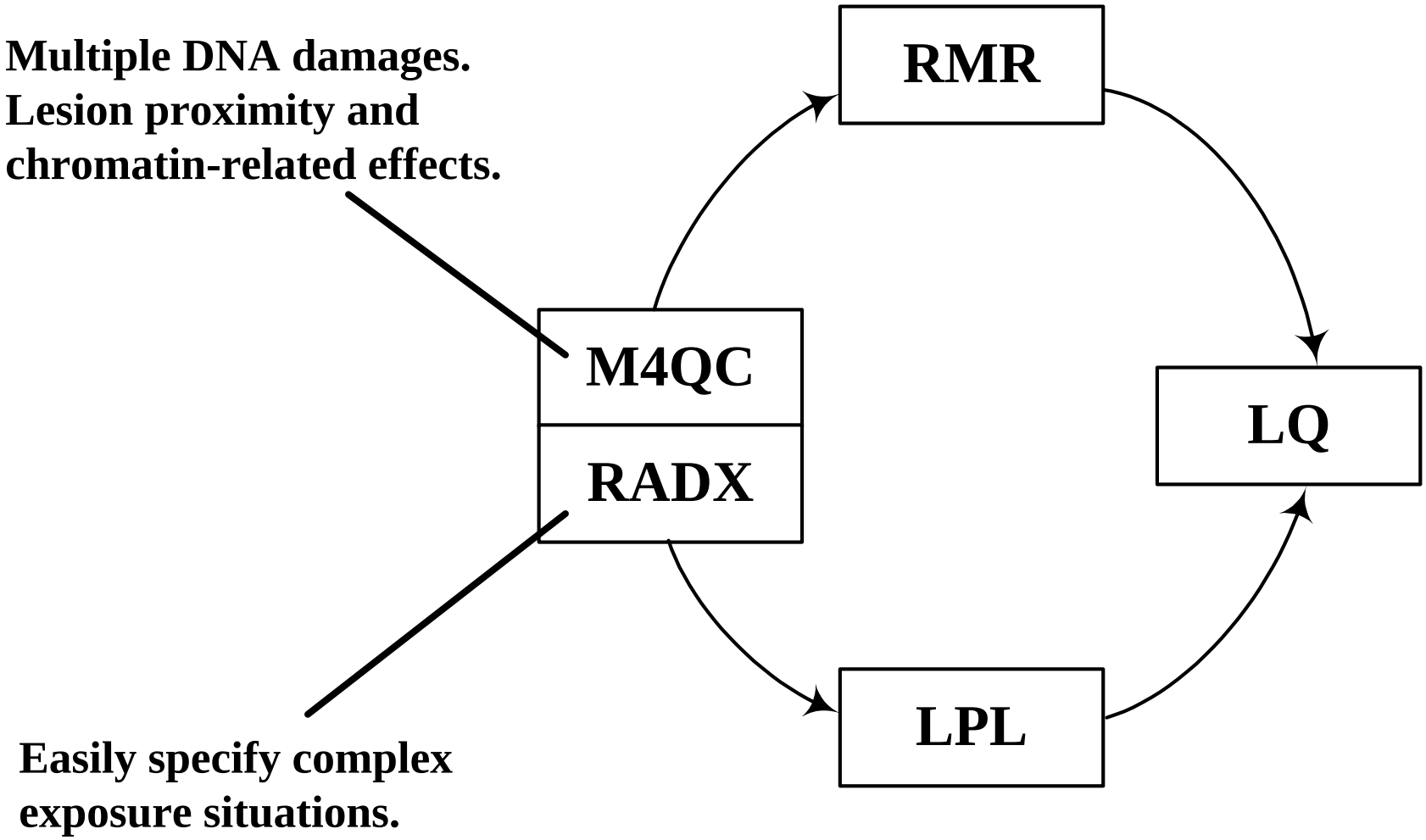
Relationship to Other Models



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Repairable DNA Damages

For all types of repairable DNA damage, the expected number of repairable DNA lesions is determined by

$$\frac{d\bar{L}_i(n,t)}{dt} = 2\dot{D}(t)Y_n\,\Sigma_i(n) - \left\{ l_i(n) + \bar{e}_i(n,t) + \sum_{l=1}^{N}\sum_{m=1}^{Q}\sum_{j=1}^{N_r} h_{i\to l}(n;j,m)\bar{L}_j(m,t) \right\} \bar{L}_i(n,t)$$

$$+ \sum_{l=1}^{N_r} \bar{L}_l(n,t) \left\{ \left[1-\bar{a}_l(n)\right] \bar{b}_{l\to i}(n)\, l_l(n) + \sum_{m=1}^{Q}\sum_{j=1}^{N_r} h_{l\to i}(n;j,m)\bar{L}_j(m,t) \right\}$$

$$+ \sum_{l=1}^{N_r} \bar{e}_{l\to i}(n,t)\bar{L}_l(n,t).$$

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Lethal and Non-lethal Genetic Alterations

Non-Lethal (mutations)

$$\frac{d\bar{M}_k(n,t)}{dt} = \sum_{i=1}^{N_r} \bar{L}_i(n,t)\left\{ l_i(n)\left[1-\bar{a}_i(n)\right]\bar{b}_{i\to k}(n) + \sum_{m=1}^{Q}\sum_{j=1}^{N_r} h_{i\to k}(n;j,m)\bar{L}_j(m,t)\right\}$$
$$+ \sum_{i=1}^{N_r} \bar{e}_{i\to k}(n,t)\bar{L}_i(n,t).$$

Lethal

$$\frac{d\bar{L}_f(t)}{dt} = 2\dot{D}(t)Y\,\bar{\Sigma}_f + \sum_{n=1}^{Q}\sum_{i=1}^{N_r} \bar{L}_i(n,t)\left\{ l_i(n)\left[1-\bar{a}_i(n)\right]\bar{b}_{i\to f}(n) + \bar{e}_{i\to f}(n,t)\right\}$$
$$+ \sum_{n=1}^{Q}\sum_{i=1}^{N_r} \bar{L}_i(n,t)\sum_{m=1}^{Q}\sum_{j=1}^{N_r} h_{i\to f}(n;j,m)\bar{L}_j(m,t).$$