$$\frac{\Gamma^{r}_{1+a/2}}{\Gamma_{1+ra/2}} \int_{dx_i}^{\mathbb{R}^r} {}^{x}\mathfrak{e}_x^{-1/2} \prod_{i<j} \overbrace{x_j - x_i}^{a} = \frac{\Gamma^{X}_{d/r}}{(2\pi)^{d/2-r}}$$

$$\text{LHS} \overset{\text{FK}}{\underset{121}{=}} \frac{\sqrt{2\pi}^{r}}{\Gamma_{1+ra/2}} \prod_{1 \leqslant k \leqslant r} \Gamma_{1+ka/2} = \sqrt{2\pi}^{r} \prod_{1 \leqslant j \leqslant r} \Gamma_{1+(r-j)\,a/2}$$

$$= \sqrt{2\pi}^{r} \prod_{1 \leqslant j \leqslant r} \Gamma_{d/r-(j-1)\,a/2} = \sqrt{2\pi}^{r} \frac{\Gamma^{X}_{d/r}}{\sqrt{2\pi}^{d-r}} = \text{RHS}$$

$$\int_{dx/\sqrt{2\pi}^{d}}^{X} {}^{x}\mathfrak{e}_x^{-A/2} \overset{\text{FK}}{\underset{350}{=}} \overbrace{A}^{-1/2} : \quad \int_{dx/\sqrt{2\pi}^{d}}^{X} {}^{x}\mathfrak{e}_x^{-1/2} = 1: \quad \int_{dx}^{X} {}^{x}\mathfrak{e}_x^{-1/2} = \sqrt{2\pi}^{d}$$

$$\overrightarrow{\mathbb{R}}^{r} : x_1 < \cdots < x_r$$

$$\frac{\Gamma^{X}_{d/r}}{(2\pi)^{d-r}} \int_{dx}^{X} {}^{x}\daleth = \frac{\Gamma^{r}_{1+a/2}}{\Gamma_{1+ra/2}} \int_{dx_i}^{\mathbb{R}^r} \prod_{i<j} \overbrace{x_j - x_i}^{a} \int_{dh}^{\text{Aut } X} {}^{x \cdot h}\daleth$$

$$\int_{dx}^{X} {}^{x}\daleth \overset{\text{FK}}{\underset{104}{=}} c_0 \int_{dx_i}^{\overrightarrow{\mathbb{R}}^r} \prod_{i<j} \overbrace{x_j - x_i}^{a} \int_{dh}^{\text{Aut } X} {}^{x \cdot h}\daleth = \frac{c_0}{r!} \int_{dx_i}^{\mathbb{R}^r} \prod_{i<j} \overbrace{x_j - x_i}^{a} \int_{dh}^{\text{Aut } X} {}^{x \cdot h}\daleth$$

$${}^{x}\daleth = {}^{-x \bigstar x/2}\mathfrak{e} \Longrightarrow \text{LHS} = \frac{\Gamma^{X}_{d/r}}{(2\pi)^{d-r}} \sqrt{2\pi}^{d} = \frac{\Gamma^{X}_{d/r}}{(2\pi)^{d/2-r}} = \text{RHS}$$