Consider a connected reductive group $G$ with connected center, defined over the algebraic closure of a finite field, and let $F$ be a Frobenius map on $G$ with $G = G^F$ the finite group of rational points. If $\chi$ is an irreducible complex character of $G$, we study the action on $\chi$ by an element of the absolute Galois group $\text{Gal}(\overline{\mathbb{Q}}/\mathbb{Q})$ on the character values of $\chi$. In particular, if $\chi$ is described by Lusztig parameters (or Jordan decomposition), then we give the Lusztig parameters of the image of $\chi$ under the Galois action. As a result, we obtain a criterion for $\chi$ to be rational-valued. We will also discuss recent developments on similar results in some cases when the center of $G$ is disconnected, which is joint work with Mandi Schaeffer Fry and Stephen Trefethen. (Received September 13, 2019)