

## HUGO GENE NOMENCLATURE COMMITTEE (HGNC) RECOMMENDATIONS FOR THE DESIGNATION OF GENE FUSIONS

There has never been a generally recommended, standardized way to denote gene fusions. In the early 80s when fusion genes were first found in cancer cells, the fusions were generally described in words but soon two nomenclature systems developed: the use of a hyphen (-) or a forward slash (/) to separate the two genes involved, e.g., *BCR-ABL1* and *BCR/ABL1*. Both types of designation suffer from important shortcomings. The HUGO Gene Nomenclature Committee (HGNC) has now published a document that for the first time proposes a unique and easily recognizable way to symbolize gene fusion events

(<https://www.nature.com/articles/s41375-021-01436-6>). HGNC recommends the use of a double colon (::) between approved gene symbols to separate the genes involved in gene fusions, e.g., *BCR::ABL1* or *IGH::MYC*. The double colon (::) has several important advantages: First, it follows the long-standing recommendation of the internationally accepted ISCN cytogenetic nomenclature in which a single colon (:) is used to indicate a chromosome break and a double colon (::) to denote break and reunion. The :: separator thus nicely reflects the principal mode of origin of most fusion genes. Secondly, it is instantly recognizable and creates a unique symbol in the existing gene nomenclature, and hence is easily searchable in databases and in the literature.