Synthesis, Crystal Chemistry and Physical Properties of TTF-Amino acids and peptides

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We report the synthesis and crystal chemistry of a series of TTF derivatives bearing simple amino acids such as the achiral Glycine or the chiral Alanine. The amino acids are linked to the TTF cores via the amino group and the acid functionality is further used in combination with a templating base during electrocristallisation to yield whether mono-component systems (zwitterions radicals) and/or two-component sytems. The electrocristallisation experiments with a conjugated polycarboxylated base (e.g. fumarates) delivered unprecedented zwitterionic (neutral) radicals while two-components system were obtained while using a less stronger electrolyte/base such as a sulfate. Their X-ray structures is analyzed and discussed in relation with their electronic and magnetic properties. This work is further extended to engage simple oligopeptides that can easily be linked to the TTF moiety. The preparation and the X-ray structures of both TTF-peptides and/or their zwitterionic radicals prepared by chemical or electrochemical methods will also be reported with an eye on how self-assembly via peptidic intermolecular interactions may be rationalized to direct the construction of novel pi-functional peptidic