My research group has been exploring unique applications of room-temperature ionic liquids (RTILs) for several years. More recently, we have extended the range of these materials to include applications of similar solid phase materials, i.e. organic salts with melting points of frozen ionic liquids (25 °C to 100 °C) up to melting points of 250 °C. To contrast and better define these new materials from RTILs, we have created an acronym, GUMBOS (***G***roup of ***U***niform ***M***aterials ***B***ased on ***O***rganic ***S***alts). Our GUMBOS have the tunable properties frequently associated with RTILs, including tunable solubility, melting point, viscosity, thermal stability, and functionality. Thus, when taken in aggregate, these properties allow production of solid phase materials that have a wide range of properties, and thus also a wide range of applications. In this talk, I will highlight select applications of nanoscale GUMBOS that we have recently explored. We have designated these GUMBOS-based nanomaterials as nanoGUMBOS. We believe that our methodology for preparing nanoGUMBOS represents an extremely useful approach to production of nanomaterials since our materials can be designed and assembled for specific uses, rather than adapted for use as is true for most nanomaterials. In this talk, I will highlight selected applications, including sensor applications and cancer therapy. Specific emphasis will be placed on the unique advantages attained from use of nanoGUMBOS. Particular attention will also be focused on materials relevant to the general areas of analytical chemistry and the biomedical sciences.