

ESI Table. Some additional literature on miscellaneous topics related to CH/ $\pi$  hydrogen bonds in biological macromolecules. Titles and references are given.

(a) Carbohydrate/aromatic interactions in proteins

Carbohydrate Recognition through Noncovalent Interactions: A Challenge for Biomimetic and Supramolecular Chemistry.<sup>1</sup>

IR-Spectral Signatures of Aromatic–Sugar Complexes: Probing Carbohydrate–Protein Interactions<sup>2</sup>

Carbohydrate molecular recognition: a spectroscopic investigation of carbohydrate-aromatic interactions<sup>3</sup>

On the role of aromatic-sugar interactions in the molecular recognition of carbohydrates: A 3D view by using NMR<sup>4</sup>

Sugars stack up<sup>5</sup>

Solvent Effects in Carbohydrate Binding by Synthetic Receptors: Implications for the Role of Water in Natural Carbohydrate Recognition<sup>6</sup>

Carbohydrate-protein recognition probed by density functional theory and ab initio calculations including dispersive interactions<sup>7</sup>

Calorimetric measurement of the CH/ $\pi$  interaction involved in the molecular recognition of saccharides by aromatic compounds<sup>8</sup>

Carbohydrate-aromatic interactions: A computational and IR spectroscopic investigation of the complex, methyl  $\alpha$ -1-fucopyranosidetoluene, isolated in the gas phase<sup>9</sup>

Progress in biomimetic carbohydrate recognition<sup>10</sup>

Enthalpic nature of the CH/ $\pi$  interaction involved in the recognition of carbohydrates by aromatic compounds, confirmed by a novel interplay of NMR, calorimetry, and theoretical calculations<sup>11</sup>

Carbohydrate binding sites in *Candida albicans* exo- $\beta$ -1,3-glucanase and the role of the Phe-Phe 'clamp' at the active site entrance<sup>12</sup>

Three-Dimensional Potential Energy Surface of Selected Carbohydrates' CH/ $\pi$  Dispersion Interactions Calculated by High-Level Quantum Mechanical Methods<sup>13</sup>

Conformational mapping and energetics of saccharide–aromatic residue interactions: implications for the discrimination of anomers and epimers and in protein engineering<sup>14</sup>

Self-Assembled Multi-Component Catenanes: Structural Insights into an Adaptable Class of Molecular Receptors and [2]-Catenanes<sup>15</sup>

Self-Assembled Multi-Component Catenanes: The Effect of Multivalency and Cooperativity on Structure and Stability<sup>16</sup>

**(b) CH/ $\pi$  hydrogen bonds in protein chemistry**

The x-ray crystallographic study of covalently modified carboxypeptidase A by 2-benzyl-3,4-epoxybutanoic acid, a pseudomechanism-based inactivator<sup>17</sup>

Effect of side-chain structure on inhibition of yeast fatty-acid synthase by cerulenin analogues<sup>18</sup>

Crystal structure of neocarzinostatin, an antitumor protein-chromophore complex<sup>19</sup>

Solution structure of the antitumour antibiotic neocarzinostatin, a chromophore-protein complex<sup>20</sup>

Synthesis and Binding of Simple Neocarzinostatin Chromophore Analogues to the Apoprotein<sup>21</sup>

Induced Assembly of Aromatic Rings Caused by a CH/ $\pi$  Interaction<sup>22</sup>

Lipase-catalyzed esterification of 2-(4-substituted phenoxy)propionic acids in organic solvents: substituent effect controlling enantioselectivity toward racemic acids<sup>23</sup>

Enzymatic Properties of Phenylalanine<sup>101</sup> Mutant Enzyme of Ribonuclease Rh from *Rhizopus niveus*<sup>24</sup> Three-dimensional structure of cyanobacterial photosystem I at 2.5 Å resolution<sup>25</sup>

How Does Lipase Flexibility Affect Its Enantioselectivity in Organic Solvents? Role of CH $\cdots\pi$  Association in Stabilization of Enzyme-Substrate Complex<sup>26</sup>

CH/ $\pi$  interactions involving aromatic amino acids: refinement of the CHARMM tryptophan force field<sup>27</sup>

Carbohydrate molecular recognition: a spectroscopic investigation of carbohydrate-aromatic interactions<sup>28</sup>

Design of artificial metalloenzymes using non-covalent insertion of a metal complex into a protein scaffold<sup>29</sup>

A circular loop of the 16-residue repeating units in ice nucleation protein<sup>30</sup>

Crystal structures of *Lymnaea stagnalis* AChBP in complex with neonicotinoid insecticides imidacloprid and clothianidin<sup>31</sup>

Critical contribution of aromatic rings to specific recognition of polyether rings<sup>32</sup>

N-domain of human adhesion/growth-regulatory galectin-9: preference for distinct conformers and non-sialylated N-glycans and detection of ligand-induced structural changes in crystal and solution<sup>33</sup>

Characterization of molecular recognition of STAT3 SH2 domain inhibitors through molecular simulation<sup>34</sup>

Insight into mechanism of small molecule inhibitors of the MDM2-p53 interaction: Molecular dynamics simulation and free energy analysis<sup>35</sup>

Strengthening  $\pi$ - $\pi$  interactions while suppressing Csp<sup>2</sup>-H $\cdots\pi$  (T-shaped) interactions via perfluoroalkylation: A crystallographic and computational study that supports the beneficial formation of 1-D  $\pi$ - $\pi$  stacked aromatic materials<sup>36</sup>

Aromatic-proline interactions: electronically tunable CH/ $\pi$  interactions<sup>37</sup>

### (c) CH/ $\pi$ hydrogen bonds in nucleic acids

Most compact hairpin-turn structure exerted by a short DNA fragment, d(GCGAAGC) in solution: an extraordinarily stable structure resistant to nucleases and heat<sup>38</sup>

The structural basis of specific base-excision repair by uracil-DNA glycosylase<sup>39</sup>

Crystal structure and mutational analysis of human uracil-DNA glycosylase: Structural basis for specificity and catalysis<sup>40</sup>

An extended DNA structure through deoxyribose-base stacking induced by RecA protein<sup>41</sup>

Cross-strand purine-pyrimidine stack and sheared purine/pyrimidine pairing in the human HIV-1 reverse transcriptase inhibitors<sup>42</sup>

Solution structure of the ActD-5' -CCGTT3GTGG-3' complex: drug interaction with tandem G·T mismatches and hairpin loop backbone<sup>43</sup>

Common and selective molecular determinants involved in metabotropic glutamate receptor agonist activity<sup>44</sup>

Measurement of Nucleobase pKa Values in Model Mononucleotides Shows RNA-RNA Duplexes to be More Stable than DNA-DNA Duplexes<sup>45</sup>

An analysis of the different behavior of DNA and RNA through the study of the mutual relationship between stacking and hydrogen bonding<sup>46</sup>

Effect of the bases flanking an abasic site on the recognition of nucleobase by amiloride<sup>47</sup>

### (d) CH/ $\pi$ hydrogen bonds in SBDD

Chymotrypsin Inhibition Induced by Side Chain-Side Chain Intramolecular CH/ $\pi$  Interaction in D-Thr-L-Phe Benzylamide<sup>48</sup>

Design of serine protease inhibitors with conformation restricted by amino acid side-chain-side-chain CH/ $\pi$  interaction<sup>49</sup>

A novel type of structurally simple nonpeptide inhibitors for alpha-chymotrypsin. Induced-fit binding of methyl 2-allyl-3-benzenepropanoate to the S2 subsite pocket<sup>50</sup>

Highly potent inhibitors of the Grb2-SH2 domain<sup>51</sup>

Structure-based Design of Compounds Inhibiting Grb2-SH2 Mediated Protein-protein Interactions in Signal Transduction Pathways<sup>52</sup>

Comparative molecular field analysis (CoMFA) and docking studies of non-nucleoside HIV-1 RT inhibitors (NNIs)<sup>53</sup>

Structure-Activity Relationship and Rational Design of 3,4-Dephostatin Derivatives as Protein

Tyrosine Phosphatase Inhibitors<sup>54</sup>

Structure of porcine pancreatic elastase complexed with FR901277, a novel macrocyclic inhibitor of elastases, at 1.6 Å resolution<sup>55</sup>

Molecular design and biological activities of protein-tyrosine phosphatase inhibitors<sup>56</sup>

Focused Library Approach for Identification of New N-Acylphenylalanines as VCAM/VLA-4 Antagonists<sup>57</sup>

The structure of human recombinant aldose reductase complexed with the potent inhibitor zenarestat<sup>58</sup>

Synthesis, dopamine D2 receptor binding studies and docking analysis of 5-[3-(4-arylpiperazin-1-yl)propyl]-1H-benzimidazole, 5-[2-(4-arylpiperazin-1-yl)ethoxy]-1H-benzimidazole and their analogs<sup>59</sup>

Structure-based design of derivatives of tyropeptin A as the potent and selective inhibitors of mammalian 20S proteasome<sup>60</sup>

Synthesis and c-Src inhibitory activity of imidazo[1,5-a]pyrazine derivatives as an agent for treatment of acute ischemic stroke<sup>61</sup>

Crystallographic investigation of the inhibition mode of a VIM-2 metallo-β-lactamase from *Pseudomonas aeruginosa* by a mercaptocarboxylate inhibitor<sup>62</sup>

Fatty acid amide hydrolase inhibitors. Surprising selectivity of chiral azetidine ureas<sup>63</sup>

Novel estrogen receptor (ER) modulators: carbamate and thiocarbamate derivatives with m-carborane bisphenol structure<sup>64</sup>

Inhibitors of human 2,3-oxidosqualene cyclase<sup>65</sup>

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